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THE LEIBNIZ-ARNAULD CORRESPONDENCE

THE
LEIBNIZ-ARNAULD
CORRESPONDENCE

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MANCHESTER UNIVERSITY PRESS
BARNES & NOBLE, NEW YORK

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Published by the University at
The University Press
316–324 Oxford Road, Manchester 13

First published
in the United States
1967
Barnes & Noble, Inc.
105 Fifth Avenue, New York, N. Y. 10003

Printed in Great Britain by Butler & Tanner Ltd. ,Frome and London

928744

TABLE OF CONTENTS

page

ABBREVIATIONS vii

TRANSLATOR'S NOTE ix

INTRODUCTION

1. A general survey of the correspondence xi
2. The summary of the *Discourse on Metaphysics*, and the letters of March and April 1686 xv
3. The letters of May and July 1686 xix
4. The letters of September and November 1686, and of March and April 1687 xxvi
5. The letters of August and October 1687 xxxi
6. The place of the *Discourse on Metaphysics* and the correspondence with Arnauld in Leibniz's thought xxxix

THE CORRESPONDENCE

I. Leibniz to the Landgrave Ernst von Hessen-Rheinfels. 1/11 February 1686 3

II. Arnauld to the Landgrave Ernst von Hessen-Rheinfels. 13 March 1686 9

III. Leibniz to the Landgrave. 12 April 1686 11

IV. Leibniz to the Landgrave. 12 April 1686 18

V. Leibniz to the Landgrave. 5/15 April 1686 22

VI. Arnauld to Leibniz. 13 May 1686 24

VII. Arnauld to the Landgrave. 13 May 1686 35

VIII. The Landgrave to Leibniz. 21/31 May 1686 38

IX. Leibniz's 'Remarks upon M. Arnauld's letter' 39

	page
X. Leibniz to Arnauld. 4/14 July 1686	53
XI. Leibniz to Arnauld. 4/14 July 1686	67
XII. Leibniz to the Landgrave. 14 July 1686	73
XIII. Leibniz to the Landgrave. 2/12 August 1686	75
XIV. Arnauld to Leibniz. 28 September 1686	77
XV. The Landgrave to Leibniz. 21/31 October 1686	83
XVI. Draft of a letter from Leibniz to Arnauld	84
XVII. Leibniz to Arnauld. 28 November/8 December 1686	91
XVIII. Leibniz to the Landgrave. 28 November/8 December 1686	102
XIX. Arnauld to Leibniz. 4 March 1687	105
XX. Leibniz to Arnauld. 30 April 1687	113
XXI. Leibniz to Arnauld. 22 July/1 August 1687	130
XXII. Arnauld to Leibniz. 28 August 1687	132
XXIII. Arnauld to the Landgrave. 31 August 1687	138
XXIV. The Landgrave to Leibniz. 11 September 1687	139
XXV. Leibniz to the Landgrave	141
XXVI. Leibniz to Arnauld. 9 October 1687	143
Appendix I to Letter XXVI	163
Appendix II to Letter XXVI	165
XXVII. Leibniz to Arnauld. 4/14 January 1688	166
XXVIII. Leibniz to Arnauld. 23 March 1690	169
INDEX OF NAMES	175
INDEX OF SUBJECTS	178

ABBREVIATIONS

A	*Gottfried Wilhelm Leibniz: Sämtliche Schriften und Briefe* (Darmstadt and Berlin, 1923–). References are to series and volume.
Belaval	*G. W. Leibniz: Confessio Philosophi*, ed. by Y. Belaval (Paris, 1961).
C	*Opuscules et Fragments inédits de Leibniz*, ed. by L. Couturat (Paris, 1903).
to Clarke	*Correspondance Leibniz-Clarke*, ed. by A. Robinet (Paris, 1957). Clarke's translation (1717) is contained in Loemker, pp. 1095 ff., and has been published separately by H. G. Alexander (Manchester, 1956). References (by paper and section) are to Leibniz's papers.
Couturat, *Logique*	*La Logique de Leibniz*, by L. Couturat (Paris, 1901).
DM	*Discours de Métaphysique*, ed. by H. Lestienne (2nd ed., Paris, 1952). (See also 'Lucas and Grint'.)
Fischer-Kabitz	*Gottfried Wilhelm von Leibniz*, by Kuno Fischer, 5th ed., revised by W. Kabitz (Heidelberg, 1920).
Friedmann	*Leibniz et Spinoza*, by G. Friedmann (Paris, 1946).
G	*Die philosophischen Schriften von Gottfried Wilhelm Leibniz*, ed. by C. I. Gerhardt, 7 vols. (Berlin, 1875–90).
GM	*Leibnizens mathematische Schriften*, ed. by C. I. Gerhardt, 7 vols. (Berlin and Halle, 1849–63).

Grua	*G. W. Leibniz: Textes inédits*, ed. by G. Grua (Paris, 1948).
Grua, *Jurisprudence*	*Jurisprudence universelle et Théodicée selon Leibniz*, by G. Grua (Paris, 1953).
Jagodinsky	*Leibnitiana: Elementa philosophiae arcanae de summa rerum*, ed. by I. Jagodinsky (Kazan, 1913).
Le Roy	*Leibniz: Discours de Métaphysique et Correspondance avec Arnauld*, ed. by G. Le Roy (Paris, 1957).
Lewis	*Lettres de Leibniz à Arnauld, d'après un manuscrit inédit*, ed. by G. Lewis (Paris, 1952).
Loemker	*Gottfried Wilhelm Leibniz: Philosophical Papers and Letters*, ed. and trans. by L. E. Loemker (Chicago, 1956).
LR	*Logic and Reality in Leibniz's Metaphysics*, by G. H. R. Parkinson (Oxford, 1965).
Lucas and Grint	*Leibniz: Discourse on Metaphysics*, trans. by P. G. Lucas and L. Grint (Manchester, 1953). (Based on the Lestienne edition).
Mon.	*Principes de la philosophie ou Monadologie*, ed. by A. Robinet (Paris, 1954).
PNG	*Principes de la Nature et de la Grace*, ed. by A. Robinet (in the same volume as the *Monadologie*).
Prenant	*G. W. Leibniz: Oeuvres Choisies*, ed. by L. Prenant (Paris, 1940).
Rivaud	A. Rivaud, review of Jagodinsky in *Revue de Métaphysique et de Morale*, 1914.

TRANSLATOR'S NOTE

The translator of the Leibniz-Arnauld correspondence is faced with a textual problem. Leibniz intended to publish the correspondence, and to this end revised his own copy, which therefore differs in some respects from the letters that Arnauld received. The problem, then, is whether the correspondence is to be translated in its original or in its revised state. What is translated below is the text of the correspondence as Leibniz left it—that is, the text on which he would have based any published edition. Leibniz's copy is the basis of the edition of the correspondence published by C. I. Gerhardt in 1879, as part of Vol. II of *Die philosophischen Schriften von Gottfried Wilhelm Leibniz*, and the translation has been made from this edition; the letters that Arnauld received are referred to only in so far as they make it possible to correct misreadings in the Gerhardt text, or to repair omissions that affect the sense. To this end, reference has been made to *Leibniz: Discours de Métaphysique et Correspondance avec Arnauld*, ed. by G. Le Roy (Paris, 1957), which presents the letters as they were received. Grateful acknowledgement is made to the publishers of this edition, Messrs. Vrin, for permission to use Professor Le Roy's text for this purpose. All departures from Gerhardt's text have been indicated in footnotes.

In the conflict which frequently occurs between accuracy and elegance, the former is always given priority; an attempt has been made to convey Leibniz's style and even punctuation as faithfully as is consonant with the demands of clarity. Internal consistency has been sought as far as possible. Where the translation is in danger of rendering a Leibnizian term ambiguously, the original word or phrase is footnoted. 'Esprit' has been throughout translated as 'mind', except in one or two special instances where again a footnote has been

added. 'Idée' has been rendered as 'notion'. In quotations from the French, the spelling has been modernized.

Very grateful thanks are due to Dr. Parkinson, whose comments on an earlier draft of the translation were most helpful, and who has made an indispensable contribution to the footnotes and index.

H. T. M.

INTRODUCTION

I. A GENERAL SURVEY OF THE CORRESPONDENCE

Antoine Arnauld was one of the first scholars with whom Leibniz became familiar during his stay in Paris, a stay which began in the spring of 1672 and lasted, almost without interruption, until late in 1676. Leibniz, who had already written to Arnauld in November 1671 (A ii. 1, 169 ff.), met him in September the following year (Le Roy, p. 11), and by March 1673 he was writing enthusiastically to Duke Johann Friedrich of Hanover, whose service he was later to enter, that he was on intimate terms with 'the world-famous M. Arnauld' (A ii. 1, 230). Arnauld, at this time in his early sixties, was indeed a person of considerable power and reputation. The uncle of Pomponne, the secretary of state of Louis XIV, he was well known, not only as the leading Jansenist theologian, but as a logician, the co-author (with Pierre Nicole) of the Port-Royal Logic (1662); he was also a considerable mathematician, author of *Nouveaux Essais de Géometrie* (1667). It is not therefore surprising that the young Leibniz, then in his mid-twenties, should have formed a great admiration for Arnauld. In the letter to Johann Friedrich already mentioned he described Arnauld as 'a man of the deepest and profoundest thoughts that a true philosopher can have'[1] (A ii. 1, 231), and it was no doubt as a mark of esteem that he showed to Arnauld, in 1673, an early attempt at a theodicy, the dialogue entitled *Confessio Philosophi*. (Preface to the *Theodicy*, G vi. 43. Cf. to Malebranche, June 1679, G i. 331).

Some ten years after writing this work Leibniz, now in

[1] The translations of Leibniz's works cited in the Introduction are mine, with the exception of passages from the Leibniz-Arnauld correspondence, where Dr. Mason's translation has been used.

Hanover, renewed contact with Arnauld. The intermediary between the two was Ernst, Landgrave of Hessen-Rheinfels, who is mentioned by Leibniz in his letter to Arnauld of 1671 (A ii. 1, 170) as someone who had already met Arnauld, and who had had discussions with Johann Christian, Baron of Boineburg, in whose service Leibniz then was. Hessen-Rheinfels, who had been converted from Protestantism to Roman Catholicism, wished to make a convert of Leibniz (Fischer-Kabitz, p. 159), and a correspondence began in 1680, in the course of which the Landgrave turned to Arnauld, old and unwell as he was (A i. 3, 327) for help. Arnauld and the Landgrave did not succeed in their efforts; but although Leibniz was not prepared to embrace Arnauld's religious beliefs, he still respected his opinion on mathematical and philosophical matters. This is shown by the fact that in August 1683 he sent to Arnauld, through the medium of the Landgrave, a mathematical work which may have been the text of the *Nova methodus pro maximis et minimis*, in which he expounded the differential calculus (A i. 3, 319–20; Lewis, p. 9, n. 2); again, in a letter of January 1685 (A i. 4, 342) he asked for Arnauld's views on the *Meditationes de cognitione, veritate et ideis*, which he had published in November 1684. More important, in February 1686 (G ii. 11) Leibniz wrote to Hessen-Rheinfels that he had recently written 'a short discourse on metaphysics', on which he would like to have Arnauld's views; he had not yet been able to have a fair copy made, so he enclosed a summary of the articles for transmission to Arnauld.

In fact, Arnauld never received this work, which is now known as the *Discourse on Metaphysics*, from Leibniz's description of it. Arnauld replied to the Landgrave in March, commenting on the summary of article 13, which he found fatalistic in tone; Leibniz answered, and a lengthy correspondence followed, but the *Discourse* itself was never sent to Arnauld. For much of the time, Arnauld was an unwilling party. In May 1686 he complained to the Landgrave that he was too absorbed by religious matters to have leisure to

devote to metaphysical questions (G ii. 34), and in March 1687—replying to a letter written in November of the previous year—he told the Landgrave that he could apply himself to such matters only at the expense of other, more pressing business (Lewis, p. 13, n. 1. Cf. Arnauld to Leibniz, March 1687, G ii. 84). Finally, replying in August 1687 to a letter written in April, he mentions once again his lack of enthusiasm for 'such abstract matters' (G ii. 105). Leibniz's next letter, a long one sent in October 1687, was not answered. This was in effect the end of the correspondence; although Leibniz wrote to Arnauld again—once from Nuremberg in January 1688, on his way to Italy (G ii. 132–4), and again from Venice in March 1690 (G ii. 134–8)—he received no reply.

Despite Arnauld's unwillingness to take part in a philosophical controversy, he made a number of acute criticisms of Leibniz's metaphysics, and Leibniz's answers provide a valuable clarification of the doctrines of the *Discourse on Metaphysics*. A sign of the importance that Leibniz himself attached to the correspondence is the fact that he thought more than once of publishing it. Shortly before the appearance of his *Système nouveau de la nature et de la communication des substances* in the *Journal des Savants* of 27 June 1695, he wrote to the Abbé Foucher, Canon of Dijon, to say that he might add to the work Arnauld's objections and his own replies (April 1695: G i. 420). The same intention was conveyed in a letter of January 1696 to Basnage de Beauval, editor of the *Histoire des Ouvrages des Savants* (G iv. 415 n.). The next year found Leibniz still thinking of publishing the correspondence, but now in the context, not of the *Système nouveau*, but of letters to Hessen-Rheinfels, Pellisson and others (Lewis, p. 2, n. 1, citing Grotefend, *Briefwechsel zwischen Leibniz, Arnauld und dem Landgrafen Ernst von Hessen-Rheinfels* (Hanover, 1846), p. vi). In 1707 and 1708 Leibniz again thought of publication, this time in connexion with the controversy with Bayle which had been started by the article *Rorarius* in Bayle's *Dictionary* (letters to Quesnel and to Bignon: Lewis,

p. 2, n. 3, and p. 107). None of these schemes came to anything, though Leibniz seems to have done some preparatory work—his copy of the letters, which is in the library at Hanover, shows signs of revision. This copy, on which Gerhardt's text is based, can now be compared (in an edition published in 1952 by Geneviève Lewis) with a copy made by Arnauld's editors of the letters which Arnauld actually received. As might be expected, there are differences between the two versions. Some of these differences may be due to last-minute alterations made by Leibniz on the copy sent to Arnauld, and not noted on his own copy; others, however, are due to Leibniz's later revision of the copy which he kept. It has been pointed out, for example, that the fact that the term 'entéléchie' ('entelechy') is not used in the letter of 9 October 1687 which was sent to Arnauld, though it is found in Leibniz's copy (G ii. 119–21, 124), indicates that Leibniz inserted it when he revised his own copy with a view to publication (Lewis, p. 19). As mentioned in the Translator's Note, what is translated below is the text of the correspondence as Leibniz left it.

The remainder of this Introduction will be devoted to a statement and discussion of the chief philosophical points raised in the correspondence, followed by an attempt to estimate the importance of the correspondence, and of the *Discourse on Metaphysics* from which it arose, in the history of Leibniz's thought. Not every letter will be discussed here —some are mere covering notes, enclosed with a longer letter—and it will not always be necessary to consider the whole of a letter which is discussed. The discussion will in the main be expository rather than critical, since to criticise fully as well as to expound would make this introduction disproportionately long. For critical comment on the *Discourse* and the correspondence, readers may refer to my *Logic and Reality in Leibniz's Metaphysics* (Oxford, 1965).

2. THE SUMMARY OF THE *DISCOURSE ON METAPHYSICS*, AND THE LETTERS OF MARCH AND APRIL 1686

It has already been mentioned that Leibniz sent Arnauld a summary of the *Discourse* before a copy, suitable for transmission, had been made; evidently he was in a great hurry to have Arnauld's opinion of his new ideas. Although the *Discourse* is not long, it is a complex work, and it is not surprising that the summary gives a very inadequate idea of it. Probably the most important defect of the summary is its failure to mention Leibniz's thesis that in every true proposition the concept of the predicate is contained in that of the subject; this thesis is central to the *Discourse*, since from it there follows (or is claimed to follow) what Leibniz says about the concept of an individual substance. The view in question is mentioned by Leibniz quite early in the correspondence (Remarks on a letter of Arnauld, G ii. 43; letter of July 1686, G ii. 52, 56), and as it is of fundamental importance something must be said about it at once. It will be noticed that Leibniz speaks of 'the concept' of a subject or predicate. Leibniz's notion of a concept may be explained roughly (cf. *LR*, pp. 11 ff., for a fuller account) by saying that, in Leibniz's usage, the meaning of a significant phrase or word (other than a particle) is a concept—though it should be added that Leibniz would say that it is possible for certain intelligent beings, such as God, to have concepts without being users of words. In speaking of *the* concept, Leibniz does not mean anyone's concept, or even the way in which a word is generally used at a certain time, in the sense in which one may speak of Hobbes' concept of man, or the medieval concept of man. For Leibniz, the concept of man is one and unchanging, and it may perhaps best be understood as the concept of man which an omniscient being would have—or rather, does have, since Leibniz thinks that there is such a being, namely God. This is easily related to Leibniz's account of the nature of truth. To say that S is P is, for Leibniz, to say that the concept of P is included in

that of S; now, if the concept of P really is included in that of S, then the proposition that S is P is true, and if it is not included, then the proposition in question is false.

It is obvious that this view of truth makes great assumptions: it assumes that every proposition either is, or is reducible to, a proposition of the subject-predicate form, and it assumes that the proposition is to be regarded intensionally—that is, it assumes that to assert a subject-predicate proposition is to say that the concept of the predicate is contained in that of the subject, and not that the subject (whether an individual or class) is a member of or is included in the predicate, which is a class (the so-called 'extensional' view of the proposition). These assumptions must be passed over without comment here; there are, however, some matters of historical interest to which reference may be made. Although Leibniz claims that he was the first to have derived metaphysical consequences from this view of truth (G ii. 57: 'One sees that . . .'), he does not claim originality for the view itself; in fact, he says that the view is Aristotle's (*Generales Inquisitiones* (1686) C 366, 388; *Primae Veritates*, C 519). It seems very unlikely that this is so, and it is not clear what passages Leibniz could have had in mind. In the *Categories*, 1a 20 ff., Aristotle says that there is a difference between being in a subject and being predicated of a subject, which appears to be the opposite of Leibniz's view. Again, Aristotle's definition of truth is that 'to say of what is that it is, and of what is not that it is not, is true' (*Metaphysics*, 1011b 27, trans. W. D. Ross), which seems to be quite unlike Leibniz's definition. It is possible, however, that Leibniz argued as follows. Aristotle commonly represents predication by means of the verb 'huparchei' ('belongs to')—for example, instead of 'Every B is A' he will write 'A belongs to every B'. Perhaps Leibniz took this to mean 'A is contained in B'; in this connexion, it may be noted that standard Latin translations of Aristotle rendered 'huparchein' as 'inesse'—'to be in'. (See, e.g., the Latin translation of the *Posterior Analytics* by Gerard of Cremona, ed. by L. Minio-Paluello,

Bruges / Paris, 1954 (*Aristoteles Latinus*, IV. 3, p. 38).) From this Leibniz might have inferred (on the basis of Aristotle's assertion that to say of what is, that it is, is true) that Aristotle meant that to say truly that B is A is to say that A is contained in B when A *is* contained in B.

The other point of historical interest is that Leibniz's view about the nature of truth is not questioned by Arnauld; indeed, as far as necessary truths are concerned Arnauld himself advances a similar view, saying in his letter of May 1686 that the property of having all the points of its circumference equidistant from the centre is 'contained in' ('enfermé dans') the concept of a sphere (G ii. 32–3). He and Nicole had already said much the same in the Port-Royal Logic. Discussing axioms in chapter 6 of part IV, they ask what propositions we may treat as axiomatic, i.e. as not requiring proof. They begin by stating the principle that 'Everything which is contained in the clear and distinct idea of a thing can truly be affirmed of that thing': for example, since being an animal is contained in the idea of man, we can affirm of man that he is an animal. They then say that the principle is not sufficient by itself to determine what may be accepted as an axiom, for there are attributes which are contained in the idea of a thing which can and should be demonstrated. However, if one sees clearly, on considering the idea of a thing 'with moderate attention' ('avec une attention médiocre'), that a certain attribute is contained in it, then the proposition that the attribute in question is contained in it may be taken as an axiom. If, on the other hand, one needs some idea or ideas other than that of the thing, then the proposition must be proved. Leibniz would not have agreed with all of this. For example, Arnauld and Nicole use the Cartesian term 'clear and distinct idea', a notion which Leibniz criticized on the grounds that no criterion of clarity and distinctness is offered (e.g. *Animadversiones in partem generalem Principiorum Cartesianorum*, G iv. 363; *Meditationes de cognitione, veritate et ideis*, G iv. 425). Again, he would say that the proposition that every man

is an animal is not an axiom, since it can be demonstrated by reduction (the concept of man being replaced by its equivalent, that of a rational animal) to the proposition that the concept of a rational animal contains the concept of an animal. Despite this, however, what Arnauld and Nicole say about axioms is close to what Leibniz says about truth in general, and it is not surprising that Arnauld should not have criticized Leibniz's theory of truth.

As already mentioned (p. xv), the way in which Leibniz derives metaphysical consequences from his theory of truth is by applying it to the concept of an individual substance. It follows from this view of truth, he claims, that the concept of an individual substance, such as Alexander the Great, must contain and must always have contained everything that can truly be predicated of that substance (DM, par. 8). The bulk of the *Discourse on Metaphysics* consists of the exploration of the metaphysical consequences of this, and it was one of these metaphysical consequences to which Arnauld first objected. This is the one stated in article 13: namely, that as the individual concept of each person contains once and for all everything that will ever happen to him, there are to be found in it the *a priori* proofs of every such event. Leibniz adds the qualification that such truths, although certain, are none the less contingent, since they are based on the free will of God or of creatures, whose choice always has reasons which 'incline without necessitating'.

In his first letter, that of March 1686, Arnauld in effect replied that Leibniz's position is not consistent. In general, Arnauld's argument is that if an event, E, can be predicted, then it cannot be said that anyone—even God—is free to bring about E. For example (G ii. 15), if the complete concept of Adam includes his having such and such descendants, how can God be called free to create these? Leibniz replied in April, making use (G ii. 18) of a distinction which he had already employed in the *Confessio Philosophi* (Belaval, p. 54), and which he also uses in the article of the *Discourse on Metaphysics* to which Arnauld had taken exception. This is the

distinction (derived from Aristotle, *Physics*, 200a 13–14) between absolute and hypothetical necessity. To say that some proposition is absolutely necessary is to say that its contradictory implies a contradiction; to say that it is hypothetically necessary is to say that it is only necessary *given that* something else in the case (cf. *LR*, pp. 109–10). For example, the proposition that no one can rob me of my money is not absolutely necessary, since its falsity can be supposed without self-contradiction; but it is hypothetically necessary, given that I have no money (from an untitled logical study, C 271). In the present case, the existence of an Adam with such and such descendants is not absolutely necessary, but it is hypothetically necessary that if God creates an Adam such that he will have such and such descendants, then in due course these descendants will, and must, be born. This is in no way to imply that God is compelled to create an Adam of this sort.

3. THE LETTERS OF MAY AND JULY 1686

Arnauld replied at some length in May 1686; Leibniz's response exists in two forms, since he wrote some remarks on the letter before replying to it in July. The remarks and the letter contain much that is important, and require an extended discussion. As they are fairly similar in content, they may conveniently be discussed together.

Arnauld agrees with Leibniz that God binds himself by his own decisions, but he says that Leibniz's views about the concept of an individual substance are open to a number of objections. The first of these (G ii. 28: 'But, it seems to me . . .') is still related to questions about necessity and freedom. The objection is involved and obscurely expressed, but may be paraphrased as follows. There are some truths, such as those of mathematics, which state an 'intrinsic and necessary connexion' between their terms, and do not depend upon the will of God. For example, the true proposition that the interior angles of a Euclidean triangle equal two

right angles is not true because of any decision taken by God. Such truths may be said to concern possibles rather than actuals, in the sense that the proposition just cited would be true even if there were no Euclidean triangles. Consider, now, Leibniz's account of the complete concept of an individual—say, Adam. According to Leibniz, the complete concept of Adam contains his having such and such descendants; but what, asks Arnauld, is the nature of true propositions about these descendants? Leibniz seems to put them in the same category as mathematical truths, for he says that a *possible* Adam has (amongst other predicates) that of having certain descendants, which seems to imply that God's will is not involved. But, Arnauld objects, men such as Isaac and Samson have come into the world only through the free decrees of God; it follows, therefore, that the concept of Adam does not after all contain the concept of all his descendants. In his reply (G ii. 40, 50–1) Leibniz says that there is an intrinsic connexion between the concepts of Adam and of his progeny, but not a necessary connexion. What he seems to mean is this. Suppose that Adam has not yet been created; that is, suppose that Adam is only possible. To think of a possible Adam is to think of the ancestor of a possible Isaac; for what makes a certain concept that of a possible *Adam* is, amongst other things, its containing the concept of being, at a certain degree of remoteness, the ancestor of Isaac, also considered as possible. Such is the 'intrinsic connexion' of which Leibniz speaks. This connexion, however, is not necessary: that is, Arnauld is wrong in thinking that Leibniz believes that the connexion between a possible Adam and a possible Isaac is of the same type as the connexion between the concept of a Euclidean triangle and the concept of having interior angles equal to two right angles. This is because to think of a possible Adam and a possible Isaac is to think of possible individual substances; that is, it is to think of possible decrees of God to create Adam and Isaac, just as to think of the actual Adam and Isaac is to think of God's actual decrees. This is not the

case, however, when one thinks of the properties of a triangle; a triangle is not an individual substance, and to think of its properties (and, indeed, to think mathematically in general) is not to make any reference to God's decrees, whether actual or possible.

Arnauld's next objection would perhaps not have been raised had he been given the text, or at least a more adequate summary, of the *Discourse on Metaphysics*. He asks (G ii. 30) how there can be more than one Adam, if Adam is individualized by his complete concept. Leibniz replies (as he had in effect said in article 9 of the *Discourse*) that there cannot be two Adams, if Adam is regarded as a determinate individual; this is an application of the doctrine of the identity of indiscernibles, according to which there cannot be two individuals which differ in number alone. We may, however, speak of several Adams if we regard Adam abstractly; that is, if we do not pay attention to the whole of his complete concept (G ii. 41–2, 54). Arnauld next objects (G ii. 31) that we cannot claim to see things as God sees them; and this, he implies, is what Leibniz is claiming to do, for the complete concept of an individual substance may be regarded as a 'God's-eye' view of that substance. Leibniz's reply is that he does not claim that we *have* this complete concept; it is enough that there *must be* such a concept (G ii. 43–4; cf. G ii. 53, 'One could therefore . . .').

The last point in Arnauld's letter is that a distinction should be drawn between the predicates which a substance cannot but have, and those which it may or may not have—in other words, between the predicates which belong to it essentially and those which belong to it *per accidens*. For example, the concept which I have of myself is such that I cannot exclude from it the concept of thought; but I can think of myself as making or not making a journey. Similarly, the concept of a sphere is the concept of a figure such that all the points on its surface are equidistant from its centre, but its size is not included in its concept. Leibniz agrees (G ii. 45, 52) that, if I am to judge of the concept of an

individual substance, it is advisable to consider the concept I have of myself. Here he may have in mind article 12 of the *Discourse*, in which he says that the whole nature of body does not consist of extension alone, but that there must be recognized in it something which is related to souls. However, he adds that it is important to distinguish (as Arnauld in his objection does not) between the concept of an individual substance and the concept of something abstract, such as the sphere (G ii. 39, 45, 49, 52). The latter is not a complete concept; that is, it is not sufficient to determine a particular individual. To mark the difference, Leibniz says in a marginal note to his letter (G ii. 49 n.) that a concept which contains all that can truly be said about, for example, heat should be called a 'full' concept; he reserves the term 'complete' for a concept which contains all that can truly be said about a substance, such as a hot fire. Now it is true, he says, that from the concept of the sphere in general—even from its complete concept—it is impossible to deduce the diameter of some actual sphere; but it does not follow that my making a journey is not deducible from my complete concept (G ii. 45, 53).

Arnauld's objections answered, Leibniz devotes the end of his letter to expounding some of the other doctrines stated in the summary of the *Discourse on Metaphysics*. In the summary of article 13 he had said that 'since the individual concept of each person contains once and for all everything that will ever happen to him, one sees in it the *a priori* proofs or reasons for the truth of each event'. In his letter (G ii. 56) he explains why he said this. He reminds Arnauld of what he has said about truth earlier in the letter (G ii. 52)—of his 'grand principe' that there must always be some basis for the connexion between the terms of a true proposition, which must be found in their concepts: in other words, that in every true proposition the concept of the predicate is contained in that of the subject. One of the consequences of this, he says, is 'the common axiom that there is a reason for everything that happens'. This is one form of what

Leibniz usually calls the 'principle of sufficient reason', a principle which he often declares to be a consequence of his views about truth. (Besides G ii. 56 and DM, par. 13, cf. to Arnauld, second letter of July 1686, G ii. 62; Appendix to *Theodicy*, G vi. 414; *De Synthesi et Analysi Universali*, G vii. 295; *Introductio ad Encyclopaediam Arcanam*, C 513; *Primae Veritates*, C 519; *LR*, pp. 63 ff.) The letter to Arnauld just cited is not quite explicit about the way in which this consequence follows; to understand Leibniz's argument, it must be noted that he often states the principle of sufficient reason in the form of an assertion like that just quoted from the summary of article 13 of the *Discourse on Metaphysics*—namely, that every true proposition has a reason or *a priori* proof (G ii. 62; G vi. 413; Mon., par. 32; to Clarke, 5. 125). Now, Leibniz holds that to prove that a proposition is true is to show, by analysis of the terms of the proposition, how the concept of the predicate is contained in that of the subject (DM, par. 13; G vii. 295–6; C 513, 519), and since he has said that in *every* true proposition the concept of the predicate is contained in that of the subject, it follows that every true proposition can be proved.

The principle of sufficient reason is a complex topic, and cannot be discussed fully here; two points, however, must be mentioned. First, when Leibniz says that every true proposition is provable he does not mean that it is provable by us. We can give *a priori* proofs of propositions only when the analysis which shows how the concept of the predicate is in that of the subject involves a finite number of operations. Such truths we call 'necessary'; other truths, which we call 'contingent', are indeed provable, but they require an infinite analysis, of which God alone is capable. Leibniz gave this account of the distinction between necessary and contingent truth in 1686—cf. an important logical paper written in that year, *Generales Inquisitiones* (C 376, 388–9)—but he does not mention it in his letters to Arnauld, though he does say (G ii. 62) that we cannot always carry out the analysis that the proof of a proposition requires. The second

point is that the thesis that every truth has an *a priori* proof is not always what Leibniz means by the 'principle of sufficient reason'. Sometimes (e.g. *Specimen Inventorum*, G vii. 309; to Clarke, 2. 1) he uses the term to mean what he also calls, less misleadingly, the 'principle of the best' (Preface to *Theodicy*, G vi. 44; to Clarke, 5. 9)—namely, the proposition that things are as they are because God created the world which is the best possible. This thesis (on which cf. *LR*, pp. 105–6) is clearly different from the assertion that every truth has an *a priori* proof, and does not follow from Leibniz's views about the nature of truth. To avoid confusion, the term 'principle of sufficient reason' will in future be used to refer only to the thesis that every true proposition has an *a priori* proof.

Another important doctrine which Leibniz mentions towards the end of his letter (G ii. 57; cf. Remarks, G ii. 47) is, for him, a further consequence of the view that in every true proposition the concept of the predicate is contained in that of the subject. This is the thesis, also expressed in article 9 of the *Discourse on Metaphysics*, that every individual substance expresses the whole universe after its own fashion, and is 'like a world apart, independent of everything except God' (G ii. 57). Leibniz does not mean that we should abandon the use of such words as 'interaction', 'cause' and 'effect'; what he means is that these words must be reinterpreted. To say that substances interact is, for Leibniz, a somewhat misleading way of saying that they 'exist in perfect harmony with one another' ('s'accordent parfaitement': G ii. 47), i.e. that their activities are correlated in certain ways. More specifically (cf. DM, par. 15) substance A is said to act on substance B if A's expression of the universe is more distinct than B's (G ii. 47), or, if A expresses more distinctly than B the 'cause of or reason for the changes' (G ii. 57). This last may seem strange, for we are surely meant to explain the notion of cause *in terms of* the notion of expression. However, Leibniz does not explain in these terms the notion of cause as it is applied to God (cf. *LR*,

p. 154), and the context shows that this is probably what is in mind here; what is meant, then, is that A may be said to act on B if A expresses God more distinctly than B does. Leibniz also claims to explain the union of soul and body in a similar way (G ii. 57–8; cf. DM, par. 33). He calls his thesis about the correlation between substances the 'hypothesis of the concomitance or harmony between substances' (G ii. 58; cf. G ii. 47), and he distinguishes it from occasionalism. According to this doctrine, the ball which is said to move because another hits it really moves *on the occasion* of being hit; the cause of its movement is God. Leibniz takes this to mean that God is constantly intervening in nature; that is, to postulate a kind of perpetual miracle (G ii. 57). In his view, on the other hand, things are created by God in such a way that they harmonize with each other; constant intervention by God in the running of his own creation is therefore unnecessary.

Finally, Leibniz says (G ii. 58) that if a body is a substance, then it cannot consist of extension (cf. DM, par. 12), but that one must recognize in it something that is called a 'substantial form' (cf. DM, par. 10). The term 'substantial form' was used by the Scholastics to refer to the goal of a thing's endeavour, the fully developed state that it tries to realize; movement, and indeed all change, were explained by them in such terms. Such notions were rejected by many seventeenth-century scientists and philosophers, and Leibniz knew that in rehabilitating substantial forms he might seem to be taking a retrograde step. He takes care to add, therefore, that these forms are not to be used to explain particular natural phenomena; in such cases, he says, he is 'as corpuscular as one can be' (G ii. 58; cf. DM, par. 18). Nature must always be explained mathematically or mechanically, but one must remember that the laws of mechanics 'do not depend upon mathematical extension alone but upon certain metaphysical reasons' (G ii. 58).

4. THE LETTERS OF SEPTEMBER AND NOVEMBER 1686 AND OF MARCH AND APRIL 1687

Plainly, there is much that remains to be clarified in what Leibniz has said, and questions about the hypothesis of concomitance and about substantial forms were in fact raised by Arnauld in his next letter, of September 1686. Leibniz's reply exists in two forms: first, there is the draft of a letter, and then there is the letter itself, written on 28 November (old style).

The answers which Leibniz gives to Arnauld's questions about the hypothesis of concomitance add little to what he has already said. In the draft of the reply he writes a good deal about the hypothesis (G ii. 68–71), but when writing the letter he seems to have decided that much of this was unnecessary, since (G ii. 74) Arnauld had answered his own questions. Leibniz says that when the soul has a feeling of pain at the same time as the arm is wounded, this does not mean that a physical event has been the cause of a mental event. Rather, 'the soul creates for itself this pain, which is a natural consequence of its state or concept'. The pain and the wound coincide because God created substances in such a way that they harmonize. This harmony, Leibniz adds, itself constitutes a proof of the existence of God (G ii. 75. Cf. the letter of October 1687, G ii. 115; DM, par. 14; *Système Nouveau*, G iv. 486).

Arnauld's questions about substantial forms caused Leibniz more difficulty (G ii. 71, 75), and led him to give answers which are an important clarification of his views. Arnauld asks no fewer than seven questions about the substantial forms of bodies, questions which are concerned in various ways with the unity that physical substances have. Leibniz's reply is very cautious, and is put in hypothetical terms; he is not prepared to state with certainty that there are physical substances, though he is prepared to say what must be the case *if* there are such substances. The reason for his caution is that he thinks it possible that bodies are only 'true

phenomena' (G ii. 71, 77; cf. G ii. 58); that is, that to speak of physical objects is simply to speak of a set of coherent phenomena. This view, which has obvious affinities with that of Berkeley, had already been advanced as an hypothesis in the *Discourse on Metaphysics* (pars. 11, 12, 34, 35: Lucas and Grint, notes to pp. 17, 18, 57, 59). Leibniz later deleted the relevant passages from his fair copy of the *Discourse*, perhaps on one of the occasions when he was preparing the *Discourse* and the correspondence with Arnauld for publication. A probable date for this revision is c. 1695. As already mentioned (p. xiii above), Leibniz thought of publishing the correspondence with Arnauld as an appendix to his *Système nouveau*, and it was in connexion with this work that he produced an argument for the existence of corporeal substances. The argument, incidentally, is based on the principle of the best, Leibniz saying that God willed that there should be more rather than fewer substances, and that he found it good that phenomena ('modifications' of the soul) should correspond to something external (*Eclaircissement du nouveau système*, *Journal des Savants*, April 1696; G iv. 495).

Leibniz insists that granted that there are corporeal substances, their substantiality does not lie in their being extended. He has already said, in his letter of July (G ii. 58) that *if* a body is a substance, it cannot consist of extension; what makes it a substance is rather a substantial form or soul. He now produces arguments for this conclusion. In the draft of his letter (G ii. 72) he points out that every extended mass can be considered as composed of others, so that one can never find a body of which one can say that it is truly one substance, or a real entity; from this it follows that the substance of a body must be indivisible. The argument is not expressed clearly, but Leibniz seems to be saying that for something to be *one* substance it must not be composed of other substances; no substance, therefore, can be composite, i.e. no substance (and *a fortiori* no corporeal substance) can be divisible. It follows from this that, since extension is always divisible, a body's substantiality cannot

be located in its extension, but must be found in a soul or form. In the letter, too, Leibniz argues for the indivisibility and indestructibility of substance. The context is that of a reply to Arnauld's third question, namely, whether it is the substantial form of a marble tile that makes it one (G ii. 66). Leibniz replies (G ii. 76) that a marble tile is not a single substance; for the tile is an aggregate, and substantial unity demands a 'complete, indivisible entity', since its complete concept includes everything that is to happen to it. He had argued in a similar way in article 9 of the *Discourse on Metaphysics*, saying that the indivisibility of a substance follows directly from the proposition that the concept of a substance must be complete. (For comment on this argument, cf. *LR*, pp. 158–9). To Arnauld's objection (stated in his second question) that if the substantial form of a body is indivisible, then it must also be indestructible, Leibniz replies by admitting this consequence. In his letter (G ii. 75) he takes as an example the souls of animals. (He asserts here that animals do have souls, in opposition to the Cartesian view; in the draft, G ii. 72, he says only, 'If animals have souls'). These souls, he says, are indestructible, and we must therefore regard generation as transformation, as Leeuwenhoek did.

Of Arnauld's questions about substantial forms, it is perhaps the first which is the most important. Arnauld asks (G ii. 66) how our soul and body can be two really distinct substances, if there is a substantial form in our physical body—the point being that a substantial form is, if not a soul, at any rate soul-like. Part of Leibniz's answer is an *argumentum ad hominem*; he says (G ii. 75) that Arnauld, as a Catholic, must accept the proposition that the soul is the substantial form of the body, as this was a declaration of the fifth Lateran council. However, this is not the whole of his reply. Arnauld had assumed (with Descartes) that the human soul and body are two quite separate substances; Leibniz denies that they are. He is not wholly explicit about this, but it seems to be his view that we may either speak of

the living body, which is one substance, animated by its soul, or, if we regard the soul as separated from the body (i.e. if we suppose the human being to be dead) we must speak of one substance—the soul—plus a whole aggregate of substances, the corpse (G ii. 72–3, 75). The corpse is not a genuine substance, but is merely an *ens per aggregationem*, by which Leibniz means that 'corpse' is a name for a class rather than for an individual. The same may be said of other inanimate substances, as is shown by Leibniz's reply to other questions of Arnauld, which relate to such objects as a marble tile. Arnauld had asked what happens to the substantial form of a marble tile when the tile is broken in two. Leibniz replies that there is no such substantial form; the tile (G ii. 76) is an aggregate of substances, and is merely *unum per accidens*—no more a genuine unity than a pair of diamonds mounted in one ring. All this leaves a great deal in obscurity: in particular, one may ask in what sense a living body is one substance, for the body clearly has parts, whereas Leibniz has said that a substance must be indivisible. However, as Leibniz has more to say about the relations between soul and body in a later letter, that of October 1687, discussion of the problem may be deferred.

Arnauld replied to Leibniz in March 1687, and Leibniz answered in April. Most of Arnauld's objections, and Leibniz's replies to them, need little comment. Arnauld argues (G ii. 84) that Leibniz's hypothesis of concomitance does not really differ from occasionalism. In answer to this Leibniz repeats (G ii. 92) what he has already said in his letter of July 1686 (G ii. 57: cf. p. xxv above): namely, that occasionalism postulates a perpetual miracle—that is, God's constant intervention in the natural world—whereas his own view is that the harmony between substances is established by God when the universe is created (G ii. 94). He adds that by 'miracle' he understands here, not necessarily an event which occurs very seldom, but an act by which a created thing surpasses the force which God has given to it (G ii. 93). Arnauld also argues (G ii. 86) that Leibniz's thesis that no

composite can be a substance is 'only a quibble over words', by which he means that the thesis follows analytically from the fact that Leibniz defines a substance in terms of unity. In reply (G ii. 96) Leibniz denies that his definition is arbitrary, and says that his view may be summed up in the form of the axiom that what is not truly *one* entity is not truly one *entity* (G ii. 97). To the question (G ii. 87) why he believes in the existence of the souls of animals (cf. G ii. 75) Leibniz replies by a reference to the principle of the best; such a state of affairs is, he says, 'in keeping with the greatness and beauty of God's works' (G ii. 98). He adds that the thesis of the multiplicity of animate things is supported by the evidence of microscopy (G ii. 99). Arnauld and Leibniz do agree on one point: namely, that 'accidental unity'—that is, unity of a kind other than which a substance has—has degrees; for example, a machine has more unity than a society (G ii. 88–9, 100–102).

None of these criticisms seems to be very searching, and Leibniz's answers add little to what has already been said in the correspondence. However, two of Arnauld's objections are much more important. Arnauld asks (G ii. 84) in what respect our soul bears a more distinct expression of what happens to its body. For example, what does it know of everything that happens in digestion or nutrition? Leibniz replies (G ii. 90–91) that the soul does not express all parts of the body equally well. Too much happens in the body for everything to be 'apperceived' separately, i.e. for us to be aware of each single event; what one senses is a result of many such events taken together. In article 33 of the *Discourse on Metaphysics* Leibniz calls a perception of this kind 'confused'; later, he was to say that every such confused perception consists of an infinity of 'little perceptions', no single one of which is 'apperceived' (*Eclaircissement des Difficultés* (1698), G iv. 523; *Nouveaux Essais* (1703–5) 2.2.1; to Bierling, 1711, G vii. 501; to Rémond, 1715, G iii. 657). The other important point raised by Arnauld relates to the unity of soul and body. This, Arnauld remarks (G ii. 88) is indivisible—

we cannot, for example, speak of 'half a man'—but it is not indestructible, for at death the soul is separated from the body. Leibniz does not seem to give any answer to this in his letter of April 1687; what he has to say on the subject can best be discussed later, in the context of his reply to similar objections in a subsequent letter from Arnauld.

5. THE LETTERS OF AUGUST AND OCTOBER 1687

Arnauld's next letter to Leibniz, of August 1687, was also the last which he wrote to him. The letter raises a large number of difficulties, but little of what Arnauld says is new, and it is not surprising that a certain amount of asperity can be found in Leibniz's reply, which was written in October 1687 (G ii. 111; cf. G ii. 118, 'for you make use only . . .'). One objection of Arnauld which did produce an instructive answer was his first (G ii. 105–6). Arnauld again asks (cf. p. xxx above) in what sense our soul expresses our body more distinctly than it expresses the rest of the universe. Does not 'expression', he asks, simply mean 'knowledge'? But if it does, what Leibniz says is clearly false, for we know less of the movements of the lymph in our own body than we know, say, of the movements of the satellites of Saturn. Leibniz replies that by 'expression' he does not mean 'knowledge'; in his terminology, one thing 'expresses' another when 'there exists a constant and fixed relationship between what can be said of one and of the other' (G ii. 112). For example, if there are two geometrical figures, one of which is the projection of the other, then the one may be said to express the other. (See also to Foucher, July 1686, G i. 383; *Quid sit idea*, G vii. 263; an untitled paper on the principle of reason, C 15). This is a valuable clarification of the meaning of this important term, which is not fully explained elsewhere in the correspondence with Arnauld, or indeed in the *Discourse on Metaphysics*. Leibniz goes on to say (G ii. 112) that expression is common to all 'forms', by which he presumably means 'substantial forms'; it is a genus of which

'natural perception', animal sensation and intellectual knowledge are species. Leibniz does not explain the term 'natural perception' here, but it seems likely that he means that every substance can be said in a sense to perceive. This is suggested in article 14 of the *Discourse on Metaphysics*, in which Leibniz speaks of the 'perceptions or expressions of all substances', and is stated clearly towards the end of the present letter (G ii. 126), where Leibniz says that nothing lacks perception. Leibniz's argument seems to be that what is usually called perception, or a perception, is the expression of a multitude in what is simple—i.e. a substance—and that it is useful to widen the scope of the word, in such a way that every substance may be said to 'perceive'. (For Leibniz's views on perception, cf. Mon. par. 14; *Specimen Inventorum*, G vii. 317; to Arnauld, G ii. 121; to des Bosses, July 1706, G ii. 311; to R. C. Wagner, 1710, G vii. 529; to Bourguet, December 1714, G iii. 574–5; *LR*, pp. 178 ff.) Leibniz adds (G ii. 112) that what differentiates thought from other species of expression is that thinking is expression accompanied by consciousness ('conscience'). The nature of animal sensation is not explained here, but Leibniz said later (PNG, par. 4) that it consists of perception accompanied by memory. The rest of the reply to Arnauld's objection covers familiar ground, Leibniz saying that we do not apperceive distinctly all the movements of our body, but that we sense a confused result of all these movements (G ii. 113). He then explains again, by means of the hypothesis of concomitance, how the mind may be said to be aware of the states of its body (G ii. 113–15), and he repeats his view that the mutual correspondence of substances is one of the strongest proofs of the existence of God (G ii. 115).

Arnauld's next objection was in favour of occasionalism. He asks (G ii. 106) whether a body which has no motion can make itself move; if it cannot, then its movement must be produced by God, as the occasionalists argue. Leibniz agrees that a body which has no motion could not make itself move, but he asserts that there is no such body (G ii.

115; cf. *Specimen Inventorum*, G vii. 317). He does not mention his reasons for this view, which he had held for many years (cf. to Arnauld, 1671; A ii. 1, 172), but he may mean that every substance must be regarded as containing a form, i.e. a principle of action (G vii. 317; Theodicy, par. 87, G vi. 149; an untitled paper, G vii. 326), and that this action will manifest itself physically as movement. (Compare a different, but not necessarily inconsistent argument stated in an untitled paper written in about 1671, in which Leibniz argues (G vii. 259) that *materia prima* at rest is nothing, because whatever does not perceive is nothing, and that in which there is no variety does not perceive.)

The remainder of Arnauld's objections concern substantial forms, and the answers to most of them add little to what has already been said. The first objection from this group (G ii. 106) concerns Leibniz's view, stated in his letter of April 1687 (G ii. 96), that there cannot be several entities where there is no single entity (*unum ens*). Arnauld objects that this means that the only genuine entities are to be found among animate things, which form only a fraction of the whole of creation. As this conclusion is unacceptable, it must therefore be the case (contrary to Leibniz's opinion) that a body is several entities, and does not have a true unity. Leibniz replies (G ii. 118) that he does not say that all substantial forms are souls; in his view, the universe is full of animate bodies. To Arnauld's fourth objection (G ii. 107), that he has no clear idea of the souls of animals, Leibniz replies in effect that we must not say that only that exists of which we have a clear idea. We have, he says, no right to say that every substance is a mind, like our own, any more than we are entitled to say that there exist no more than five senses (G ii. 121). Arnauld's fifth and sixth objections, which concern the destructibility of the souls of animals (G ii. 108–9), are again answered by the thesis that birth, and also death, are transformations and not strictly speaking creation or destruction (G ii. 122–4).

Arnauld's most telling arguments against Leibniz's views

about substantial forms again concern the unity of soul and body. He asks (objection 2) how a substantial form can bring unity to a piece of matter, which consists of several entities, and adds (objection 3) that every organic body is a plurality of entities, from which it follows that in these cases there can be a substantial form in a body, and yet the body is not one entity (G ii. 107). Leibniz replies to the first of these objections at length, and says (G ii. 120) that his answer will also apply to the second objection, which is substantially the same. His view is (G ii. 118) that what is truly one is, not the matter of the animate substance, but the animate substance itself; the matter, regarded as mass, is a mere phenomenon. Matter in itself has no precise and determinate qualities—shape, for example, is never exact, because every particle of matter is subdivided to infinity; it is form which gives determinate existence to matter (G ii. 119). He goes on to say (ibid.: a passage not sent to Arnauld) that if one takes as the matter of a corporeal substance, not mass without form, but a 'second matter' ('une matière seconde'), by which is meant that multitude of substances whose mass is that of the whole body, then one can say that these substances—for example, those which compose the human body—are parts of this matter. Since a body can gain or lose some of these parts while remaining the same individual—as, for example, a human being can grow, while remaining the same human being—we can only say that these parts are temporarily necessary for the individual. What is essential to the individual is matter in another sense, that of the 'passive primitive power' of a substance. Such matter (unlike 'second matter') is not divisible, but it is the principle of divisibility.

Leibniz is here drawing a distinction which he expresses elsewhere as that between *materia prima* and *materia secunda*. He is saying that the human body, for example, consists of a large number of corporeal substances, which are unified by the human soul. This 'second matter' is not a substance in itself, but, as an aggregate, is *unum per accidens* (To Joh.

Bernoulli, 1698, GM iii. 537; to Rémond, 1715, G iii. 657. In the *De ipsa natura*, G iv. 512, *materia secunda* is said to be a complete substance, but this must be a slip. Cf. Loemker, p. 1191, n. 199). Though not a substance in itself, *materia secunda* forms a substance when taken in conjunction with a soul. As Leibniz put it (G iii. 657): 'A genuine substance (such as an animal) is composed of an immaterial soul and an organic body, and it is what is composed ('le Composé') of these two that is called *unum per se*'. Like the *matière seconde* of the letter to Arnauld, *materia secunda* is said to be constantly renewed (Mon., par. 71; to des Bosses, 1706, G ii. 306); no one of the substances which constitute it, therefore, is absolutely necessary to the individual. The matter which, in the letter to Arnauld, is declared essential to substance (Leibniz would have been more exact had he said, to *created* substance, since he declares God to be 'above all matter': *Considérations sur les Principes de Vie*, G vi. 546) is what Leibniz calls *materia prima*. Every created substance, Leibniz argues, is necessarily limited (DM, par. 30 ad fin.; Mon., par. 47; PNG, par. 9), and this limitation or imperfection is discoverable in the natural inertia of bodies, their *materia prima* (Mon., par. 42; *De ipsa natura*, G iv. 510). All this, of course, must be reconciled with Leibniz's thesis that substances are not really extended; his solution is to say that substances have *materia prima* in so far as they express something confusedly (*De modo distinguendi phaenomena realia ab imaginariis*, G vii. 322; cf. to Rémond, February 1715, G iii. 636).

Perhaps not all of this theory is to be found in the letter to Arnauld; for example, there seems to be no reference in the letter to the view that *materia prima* must be explained in terms of a substance's confused perceptions. However, much of the theory is clearly present; but what is not clear is how it enables Leibniz to answer Arnauld. Arnauld had asked (cf. p. xxxiv) how a substantial form can bring unity to a piece of matter, and he had also remarked that the presence of a

substantial form in a body does not take away the plurality of the substances of which the body is composed. Leibniz seems to concede the latter point, when he says that *materia secunda* consists of a large number of substances, and he gives no clear answer to the former. He speaks of an 'animate substance' (p. xxxiv); yet, as Arnauld implies, this is not strictly a substance, for part of it—its *materia secunda*—is an aggregate, and for Leibniz a substance must be one.

It is not certain that Leibniz ever decided on the answer to the question, 'What makes an animate substance, such as this human being, *one*?' Two answers can be found in his writings: the first is consistent with his view that all created substances are independent of one another, whereas it is hard to see how the second is consistent with it. The first view is that some substances are what Leibniz calls 'dominant' over others (Mon. par. 70; PNG, par. 3; to de Volder, 1703, G ii. 252; to des Bosses, 1712, G ii. 451, 457; 1715, G ii. 506). The human body, for example, consists of a large, indeed of an infinite number of substances; it is made one by virtue of the fact that there is a substance which is 'dominant' over these. The dominant substance is usually called the 'dominant monad', using the word for a simple substance which Leibniz seems first to have employed in this sense in 1695 (to the Marquis de l'Hospital, July 1695; GM ii. 295). This dominant monad, in accordance with the affections of the substances constituting the body, 'represents, as in a kind of centre, the things that are outside it' (PNG, par. 3). What Leibniz seems to be saying is that a monad or substance is 'dominant' over others if it represents or expresses these more distinctly than it expresses other substances.

It may be remarked that this is also the way in which Leibniz proposes to interpret the notion of a cause (cf. p. xxiv), and one may ask why, in this case, the dominant monad should not be called the cause of the body. Leibniz might reply that, although causality is to be explained in terms of expression, it does not follow that every case of one substance's expressing another is also a case of a causal rela-

tion. It may be added that he would have no objection to the dominant monad or soul being called the cause of the body if 'cause' is understood, not as 'efficient cause', but as 'formal cause'. The Scholastics and Aristotle had said that the soul is the form of the body, and Leibniz accepts this (to Arnauld, July 1686, G ii. 58), interpreting it in terms of his own views about the ways in which substances express one another. It will be worth while to look back for a moment, and note how much use Leibniz has made of the concept of expression in his account of animate substance. First, to say that (for example) a wound is the cause of a feeling of pain is, for Leibniz, to say that the damaged tissues express this feeling more distinctly than the feeling expresses the damaged tissues (cf. p. xxiv). Second, it has just been pointed out that to say that this is a wound in one particular body—for example, Nelson's—is to say that the dominant monad which is Nelson's soul expresses this physical state (and certain others also) more distinctly than it expresses other states of substances—for example, the wound which, by virtue of its relation to a dominant monad, we call the wound that Brutus gave to Caesar. There is still a third use, for the body in question is finite or limited, and to say this is to say that it has *materia prima*, i.e. that it expresses the universe only confusedly (cf. p. xxxv).

It is possible that an account of the unity of the living being in terms of expression did not always satisfy Leibniz; certainly, in his correspondence with the Jesuit Father des Bosses another view is put forward. Leibniz says there that he does not deny some 'real metaphysical union' between the soul and the organic body (April 1709; G ii. 371), and in connexion with this he develops a theory of a 'substantial bond' (*vinculum substantiale*) which binds together the component substances of one body. Such a 'metaphysical union' is obviously difficult to reconcile with the thesis that all created substances are independent of one another, and it may be that Leibniz adopted the view only for controversial purposes. He had already discussed this topic in reply to an

article by another Jesuit, Tournemine. Writing in January 1706 to de Volder, a professor at the University of Leiden, Leibniz said that such a metaphysical union 'is not a phenomenon, and there is no concept or knowledge of it', and he added that the idea is an example of Scholastic inquiries which are 'not so much ultramundane, as Utopian' (G ii. 281). This looks like a firm rejection of the idea; Leibniz does not go so far as to call it meaningless, but he seems to view it with some scorn. In his published reply to Tournemine, Leibniz repeats his view that this metaphysical union is not a phenomenon, and that we have not even an intelligible concept of it (*Mémoires de Trévoux*, March 1708; G vi. 595). He then says, surprisingly, that he does not deny that there is something of this nature. The same paradox can be found in the correspondence with des Bosses. Leibniz has already been quoted as saying that he does not deny that there is a real metaphysical union between soul and body; he then says that the union cannot be explained from the phenomena and makes no difference to them (that is, it makes no difference to any observations that might be made), so that he cannot give any distinct explanation of its nature (G ii. 371). It is difficult to determine exactly where Leibniz stands in all this. Perhaps his statement that he does not deny a metaphysical union between soul and body is to be taken, not as an affirmation of belief in it, but as an indication that he is at any rate prepared to discuss the matter.

Such are the two main views about the union of soul and body which Leibniz held, or at least did not reject. It is not certain that, at the time of writing his letters to Arnauld, Leibniz had given the problem much thought. As already mentioned, the letters do not contain his final answer to the problem—perhaps it was never given—but they may be said to contain the beginnings of an answer.

6. THE PLACE OF THE *DISCOURSE ON METAPHYSICS* AND THE CORRESPONDENCE WITH ARNAULD IN LEIBNIZ'S THOUGHT

With Leibniz's letter of October 1687 the Leibniz-Arnauld correspondence in effect ended (cf. p. xiii), and it is now appropriate to try to estimate the importance, in the history of Leibniz's thought, of the correspondence and the *Discourse on Metaphysics* from which it arose. That Leibniz himself thought it important is certain. Writing to Thomas Burnet in May 1697, Leibniz says that he is satisfied only with the philosophical views that he has held for roughly the past twelve years (G iii. 205); in other words, Leibniz himself dated his maturity as a philosopher from about the time of the *Discourse* and the correspondence with Arnauld. The importance which Leibniz attached to these is also shown by the fact that, at the beginning of the *Système nouveau* (1695), which is Leibniz's first published account of the metaphysical system of his maturity, there is a clear reference to the *Discourse* and the correspondence, Leibniz saying that he had conceived the system 'some years ago', and that he had discussed it with 'one of the greatest theologians and philosophers of our time'. It has already been mentioned (p. xiii above) that at one time Leibniz thought of publishing the correspondence with Arnauld together with the *Système nouveau*.

The question is, then, what it was about the *Discourse on Metaphysics*, and the correspondence which explicates it, that Leibniz thought new and important. In answering this question it will be convenient to consider the content of these works under the three headings of logic, theism, and theory of substance. The chief logical doctrines in question are again three: they are, the view that every proposition is of the subject-predicate form, that in every true proposition the concept of the predicate is contained in that of the subject, and that this theory of truth entails the principle of sufficient reason. The first two of these can be found in works written before 1686: the view that every proposition is of the subject-predicate form is stated in one of Leibniz's

earliest works, the *De Arte Combinatoria* of 1666 (A vi. 1, 192), whilst the theory of truth is stated in logical works written in April 1679 (*Elementa Calculi*, C 51, and *Calculi Universalis Investigationes*, C 68). As to the principle of sufficient reason, it has been seen that Leibniz himself declares that the principle is not original, but is a 'common axiom' (G ii. 56: p. xxii above). He states it in one of his early works, the *Hypothesis physica nova* of 1671, in the form of the assertion that 'there is nothing without a reason' (G iv. 232); similar assertions can be found in a letter written in the same year (to Wedderkopf, A ii. 1, 117), and in the *Confessio philosophi* which Leibniz showed to Arnauld in Paris (Belaval, pp. 30, 32). But though the principle itself is not new with the *Discourse on Metaphysics* and the Leibniz-Arnauld correspondence, its deduction from a theory of truth is. How much importance Leibniz attached to this deduction it is impossible to say, but it is worth noting that the idea was not a fleeting one; it was still his view in 1710 that the principle of sufficient reason is 'contained in the definition of truth and falsity' (Appendix to *Theodicy*, G vi. 414).

Just as the important logical doctrines of the *Discourse on Metaphysics* and the Leibniz-Arnauld correspondence can be found in Leibniz's earlier writings, so can the important theistic doctrines. Here, particular reference must be made to papers which Leibniz wrote during his stay in Paris. These include the *Confessio Philosophi* of 1673, which has already been mentioned, and a number of other papers, written in 1675 and 1676. The latter were published by I. Jagodinsky in 1913, under the title *Leibnitiana: Elementa philosophiae arcanae de summa rerum*, and excerpts from Jagodinsky's text have been translated by Loemker (pp. 243–55). As Jagodinsky's edition of these papers (which are referred to here as the *Elementa*) is neither adequate nor easily accessible, reference will also be made here to the texts as cited in A. Rivaud's review of Jagodinsky's edition in the *Revue de Métaphysique et de Morale*, 1914, pp. 94 ff.

One of the most typical of Leibniz's theistic doctrines is

the proposition (to be found, for example, in article 3 of the *Discourse on Metaphysics*) that God does everything for the best; this is closely related to Leibniz's 'principle of the best'—namely, that things are as they are because God created the world which is the best possible (cf. p. xxiv). Similar views can be found in the writings of the Paris period. In the *Confessio Philosophi* (Belaval, p. 102) Leibniz says that what exists is the best or 'most harmonious', and in the *Elementa* he states that to exist is merely to be harmonious, and that that is most harmonious which is most pleasing to the most perfect of minds (Jagodinsky, pp. 32, 36; Rivaud, pp. 97–8). In his maturity, Leibniz took the principle of the best to imply that there is no 'vacuum of forms' (G ii. 125), and it seems to have been on these grounds that he argued against Arnauld that animals have souls (G ii. 98: cf. p. xxx). A 'vacuum of forms' is also denied in the *Elementa* (Jagodinsky, p. 14; Rivaud, p. 99), in which Leibniz argues that 'the harmony of things' means that as much essence as possible exists (Jagodinsky, p. 28; Rivaud, p. 97). The assertion that each portion of matter is not merely divisible *ad infinitum* but is actually divided, made in the letter to Arnauld of 28 November / 8 December 1686 (G ii. 77), is also made in the *Elementa* (Jagodinsky, p. 34; Rivaud, p. 103), where it is advanced as a consequence of the view that as much essence as possible exists. (For the view that there is no part of matter which is not actually divided into smaller parts, cf. *Hypothesis physica nova*, G iv. 201, and *Pacidius Philalethi* (1676), C 622). Leibniz also argues in the *Elementa* (Jagodinsky, p. 16; Rivaud, p. 97) that it is a mark of the wisest being that he chooses the simplest means to produce the greatest effects, a view which is also stated in articles 5 and 6 of the *Discourse on Metaphysics*. Finally, it has already been mentioned that a concept which Leibniz uses to answer Arnauld's charge (G ii. 15: cf. p. xix) that his philosophy is determinist is to be found in a work written in 1673. Arnauld had argued that Leibniz's view that the concept of a substance is complete means that not even God is a free agent.

In his reply (G ii. 18) Leibniz made use of the concept of hypothetical necessity, a concept which he had already used in the *Confessio Philosophi* (Belaval, p. 54) to meet a different argument for a deterministic conclusion—namely, that since everything that follows from a necessary being is necessary, sins are necessary.

There seems, then, to be little that is original in either the logical or the theistic doctrines of the *Discourse on Metaphysics* and the correspondence with Arnauld. It is now time to turn to the last of the three aspects of these works which are being considered here: namely, the metaphysical conclusions about individual substances which Leibniz claims to derive from his logic. Initially, there are two questions to be asked here: first, whether the propositions deduced are new, and second, whether Leibniz's claim to deduce them from his logic is new. The answer to the second seems clearly to be that the claim is new. However, it is doubtful whether this fact alone would make Leibniz date his maturity as a philosopher from about the time of the *Discourse on Metaphysics*. If Leibniz had regarded the deduction of metaphysical consequences from logical premisses as the great achievement of the works of 1686–7, one would expect to find this deduction stressed in later works; but in fact such an emphasis is not found. If one is asking, therefore, why Leibniz thought the *Discourse on Metaphysics* and the related correspondence important, the answer must be sought in what these works contain in the way of new doctrine, rather than in any new methods of argument.

One of the most striking propositions about the nature of substance put forward in the *Discourse on Metaphysics* and the Leibniz-Arnauld correspondence is the view that every substance is in a sense a soul. There is evidence which may suggest that this doctrine was anticipated by Leibniz as early as 1671. In the *Theoria motus abstracti*, which is part of the *Hypothesis physica nova*, Leibniz says that every body has what he calls 'conatus'; indeed, there may be several opposite conatuses in one and the same body (G iv. 229). The

term 'conatus', which is borrowed from Hobbes (*De Corpore*, iii. 15, 2), is used by Leibniz when speaking both of physical things and of minds. When the term is applied to bodies, it refers to motion at an instant, Leibniz's view being that any physical movement consists of an infinite number of conatuses, a conatus being to motion as a point is to space. However, it is only physical conatuses that are momentary (G iv. 230); thought also consists of conatuses (cf. to Arnauld, 1671; A ii. 1, 173), and a conatus of this kind can endure for more than a moment. This is how Leibniz can say that every body can be regarded as 'a momentary mind, i.e. as one which lacks memory' (*mens momentanea, seu carens recordatione*; G iv. 230. Cf. A ii. 1, 173). This statement might seem very close to Leibniz's later view that bodies are to be regarded as souls, or at least as soul-like; and as the notion of the body as a momentary mind springs from Hobbes' views about conatus, there seems good reason to say that 'Leibniz's fundamental idea, the idea that the world is a concourse of monads, was derived from Hobbes' (J. W. N. Watkins, *Hobbes' System of Ideas* (London, 1965), p. 125).

There are, however, important differences between the views that Leibniz put forward in 1671 and his later views. In a letter written to Foucher in about 1693 (G i. 415) Leibniz said that his *Hypothesis physica nova* 'might have something good in it', but that 'there are several passages about which I now believe that I am better informed; amongst others, I now explain myself quite differently on the subject of indivisibles. It is the work of a young man who has not yet fathomed mathematics. The laws of abstract motion which I gave then would indeed hold, if there were nothing else in a body than what is conceived to be there in the views of Descartes, or even of Gassendi'. In 1671, in other words, although Leibniz was not a Cartesian (to Jakob Thomasius, April 1669; A ii. 1, 15), he accepted Descartes' view that the fundamental concepts of physics were extension and motion; indeed, in his letter to Arnauld of 1671 he said explicitly that the essence of body consists of motion

(A ii. 1, 172). In 1686, however, his view was that these concepts are not adequate, but that they must be supplemented by the concept of force (DM, pars. 17–18; to Arnauld, November 1686, G ii. 78 ff.; *Brevis demonstratio erroris memorabilis Cartesii*, March 1686, GM vi. 117 ff.) Descartes, Leibniz argued, was wrong in supposing that the quantity of movement is conserved; what is conserved is the same force (DM, par. 17; *Brevis demonstratio*, loc. cit.; *Eclaircissement du nouveau système*, G iv. 497–8; untitled paper, G vii. 280–3). When, therefore, Leibniz wrote in 1671 (to Johann Friedrich, Duke of Hanover; A ii. 1, 163) that there was something to be said for the Scholastic doctrine of substance, what he had in mind was not what he meant when he said in the *Discourse on Metaphysics* that the theory of substantial forms has some solidity, and that the meditations of the Scholastics are not wholly to be despised (DM, pars. 10–11). The difference is that the latter view, unlike the former, is linked with the concept of force. This is not a difference which affects Leibniz's scientific views only; as he himself said in the summary of article 18 of the *Discourse*, 'the distinction between force and quantity of motion is important, *inter alia* so that one may deem it necessary to have recourse to metaphysical considerations separate from extension in order to explain bodily phenomena'.

It may now be asked whether, in view of the difference between what Leibniz thought about bodies in 1671 and what he thought at the time of the *Discourse on Metaphysics* and the Arnauld correspondence, it is correct to say that his idea that the world is a 'concourse of monads' was derived from Hobbes. The answer will depend on how much is understood by the words 'derived from'. If one wished to say of Leibniz, echoing his own famous remark about Spinoza (to Nicaise, February 1697, G ii. 563), that he merely cultivated certain seeds of Hobbes' philosophy, one would be exaggerating; the differences between the Leibnizian philosophy of 1671 and that of 1686 are too great for Leibniz to be regarded in this way. Leibniz's doctrine of conatus is

better called (cf. Friedmann, p. 47) a first sketch of the philosophy of monads.

What has just been said about the supposedly early appearance of Leibniz's view that every substance is or is like a soul can also be said about the doctrine that each substance is indivisible and cannot be created or destroyed naturally (DM, par. 9; to Arnauld, November 1686, G ii. 76). In the letter to Arnauld of 1671, and in letters written in the same year to Johann Friedrich, Duke of Hanover, Leibniz argued that as the mind is not a body it can have no location other than a point, from which it follows that the mind is indivisible and immortal (to Johann Friedrich, A ii. 1, 113, 162–3; to Arnauld, A ii. 1, 173). At first sight, this may again seem to resemble Leibniz's mature views; but there are two important differences. First, the view that minds are located in points was later abandoned by Leibniz, on the grounds that it involves what he calls, using Aristotle's phrase (*Posterior Analytics*, 75 a 38), a *metabasis eis allo genos*—that is, roughly what would now be called a 'category mistake'. One must not, he says, assign to souls what belongs to extension (to des Bosses, April 1709; G ii. 372). Second, in the works of 1671 Leibniz speaks only of minds; he does not say that every substance is indivisible and immortal. In April 1676 Leibniz came closer to his views of ten years later, when he said in the *Elementa* that minds alone are true beings or unities (Jagodinsky, p. 110; Loemker, p. 252); but this is still not quite the doctrine that *every* substance is genuinely an entity and genuinely one. It cannot, therefore, be said that the views of Leibniz's maturity are present in these earlier writings; at best, the early work can only be said to present a first sketch of the mature doctrine.

However, it would be a mistake to claim novelty for all the views about created substances which are presented in the *Discourse on Metaphysics* as deduced from Leibniz's logic. Such a view is the doctrine of the identity of indiscernibles, which is stated in article 9 of the *Discourse* (cf. remarks on a letter of Arnauld, G ii. 42, and to Arnauld, July 1686, G ii.

54). This is the thesis (cf. p. xxi) that there are no two substances which resemble each other entirely, differing in number alone. In saying this, Leibniz does not deny that a geometer, for example, can speak of two similar triangles; but he would insist that these are abstractions and not substances. (Cf. an untitled paper, C 8, and *Primae Veritates*, C 519–20). Leibniz is right in claiming that the identity of indiscernibles follows logically from what is said in the *Discourse* about the completeness of the concept of a substance; for if a complete concept enables one to identify a substance, i.e. to differentiate it from all others, then there cannot be two substances with the same complete concept. But although this argument for the identity of indiscernibles is new, the doctrine itself is not. In one of the works written during his stay in Paris, Leibniz argued (Jagodinsky, pp. 44, 46; Rivaud, p. 102) that it is impossible that there should be two squares which are perfectly similar. (He means, as the context shows, two physical squares, and not the abstract concepts of the mathematician, for he speaks of these squares as being perceived). The reason given for this assertion is that it is always in principle possible to deduce a cause from its effect; but if I see a square, I cannot tell if it has been made out of (say) two triangles or two parallelograms. The solution offered is that two squares which have been differently constructed are not identical, but present differences which are not noticed.

The doctrine of the identity of indiscernibles, then, is not new with the *Discourse on Metaphysics* and the Leibniz-Arnauld correspondence. The question now arises, whether the same can be said about the important doctrines related to the concept of expression which are stated in these works—namely, that no created substance acts on any other, and that to speak of cause-effect relations between substances, and also of the union of mind and body, is to speak of the ways in which substances express one another, and ultimately of the way in which they express God. It has been argued that the idea that each substance expresses the whole

universe is the one major original item in the *Discourse on Metaphysics* (Lucas and Grint, p. xiv, following P. Köhler, *Der Begriff der Repräsentation bei Leibniz* (Berne, 1913); on which cf. D. Mahnke, *Leibnizens Synthese von Universalmathematik und Individualmetaphysik* (Halle, 1925), pp. 213 ff.). Against this, it has been argued above that there are other original elements in the *Discourse*, namely the notion of a substantial form as linked to that of force, and the idea that each substance is a genuine entity and is one. Leaving this aside, however, let us ask how much was new in 1686 in the view that each substance expresses the whole universe.

There seems little doubt that this idea is in some measure anticipated in Leibniz's earlier works. One of his best-known images for the idea in question is that of a substance as a 'mirror of the universe' (e.g. DM, par. 9). A similar image can be found in papers on the elements of natural law, written in c. 1670–1, in which Leibniz says that a mind is 'like a world in a mirror' (A vi. 1, 438; cf. A vi. 1, 464), and that 'every sentient being represents the object of sense like a mirror' (A vi. 1, 482). Similar views can be found in the *Elementa* (1676: Jagodinsky, p. 32, Loemker, p. 245; Jagodinsky, p. 36, Rivaud, p. 98). It has also been noted above (p. xxxii) that the mature Leibniz sometimes stated the view that each substance expresses the entire universe in the form of the assertion that each substance in a sense perceives all others. Something approaching this view can be found in a paper dated 1676, in which Leibniz says (C 10), 'It seems to me that every mind is in a confused way omniscient, and that any mind perceives at the same time whatever happens in the whole world; and that these confused perceptions of infinite varieties at the same time give the sensations that we have of colours, tastes and touch'. Leibniz adds (ibid.) that God, in creating minds, is like an artist who is painting a large city, and who wants to show its various appearances or projections—an anticipation of a favourite later idea, that God, in creating the universe, is multiplying representations of his work (e.g. DM, par. 9; Mon., par. 57). A

similar remark can be found in the notes which Leibniz made on Spinoza's *Ethics* in 1678, in which he says that the mind is not formed by the idea of the body (as Spinoza had argued), but is formed 'because God looks at (*intuetur*) the world in various ways, as I look at a city' (G i. 151). The same notes also contain (ibid.) the assertion that the whole world is in a way perceived by any mind whatsoever.

Do these early works contain the whole of Leibniz's mature doctrine about the expression of the whole universe by each substance, or (as in the case of the doctrine of conatus) do the early writings present merely a first sketch of the mature doctrine? In support of the latter view, it might be argued that the passages just quoted contain no reference to an important element of Leibniz's mature theory—namely, that the substances which mirror or perceive the whole universe neither act on nor are acted on by one another. What has been quoted so far, it may be said, is consistent with the view that to perceive is to be acted on by what is perceived; and indeed, Leibniz did say in 1676 that sense is a kind of reaction (*Elementa*, Jagodinsky, p. 110; Loemker, p. 252). Against this, it may be noted that Leibniz said in 1678, in his notes on Spinoza, that the series of ideas is distinct from the series of bodies, and that they are only in reciprocal correspondence (Grua, p. 282). It seems, then, that by 1678 Leibniz had all the materials for what he later called the hypothesis of concomitance, at any rate as far as it concerns minds. However, the qualification just made is important. What Leibniz said in the passages quoted above concerns minds only; there is no hint of his later view that no created substances interact, although each (whether a mind or not) in a sense perceives the whole universe. One must after all say of the view that each substance expresses the whole universe what was said earlier about the view that each substance is or is like a soul—that although they may be found in sketch form in Leibniz's earlier writings, these doctrines date in their fully-developed form from 1686.

G. H. R. P.

THE LEIBNIZ-ARNAULD CORRESPONDENCE

I

Leibniz to the Landgrave Ernst von Hessen-Rheinfels G, p. 11[1]

Extract from my letter to the Landgrave Ernst von Hessen-Rheinfels, 1/11 February 1686.[2]

I have lately (being at a place where for some days I had nothing to do) composed a short discourse on metaphysics about which I should be very happy to have M. Arnauld's opinion. For the questions of grace, the concourse of God and creatures, the nature of miracles, the cause of sin and the origin of evil, the immortality of the soul, ideas, etc., are touched upon in a manner which seems to open up new possibilities for the elucidation of very great difficulties. I have enclosed herewith the summary of the articles it contains, for I have not yet been able to have a fair copy made. I therefore beg Your Supreme Highness to have this summary sent to him and that he be requested to give it a little consideration and to state his opinion, for as he excels equally in theology and in philosophy, in reading and in meditation, I know of no one more fit than he to judge of it. And I should very much like to have a critic as exact, as enlightened and as reasonable as M. Arnauld, since I am myself the most easily disposed man in the world to yield to reason. Perhaps M. Arnauld will find this trifle not entirely unworthy of his consideration, above all because he has been rather taken up with the investigation of these topics. If he finds some obscurity, I shall explain my ideas sincerely and openly, and in short if he finds me worthy to be taught by him, I shall so act as to give him no cause for dissatisfaction. I beg Your Supreme Highness to enclose this with the

[1] Marginal figures refer to the pagination of vol. II of Gerhardt's edition.

[2] Leibniz's own annotation.

summary which I am sending him, and to send them both to M. Arnauld.

p. 12

SUMMARY[1]

1. Of divine perfection, and that God does everything in the most desirable manner.

2. Against those who maintain that there is no goodness in God's works; or that the rules of goodness and of beauty are arbitrary.

3. Against those who believe that God could have done better.

4. That the love of God requires an entire satisfaction and acquiescence regarding what he does.

5. What constitutes the rules of perfection of divine conduct, and that the simplicity of the means is in balance with the richness of the effects.

6. That God does nothing out of order and that it is not even possible to imagine events which are not regular.

7. That miracles conform to the general order although they contradict subordinate maxims. Of that which God wishes or permits and of the general or particular will.

8. In order to distinguish between the actions of God and

[1] The summary of the articles in the *Discourse* exists in two forms: first, as written in the autograph MS. of the *Discourse*, and second, in the form of a copy of the summary sent to Arnauld. The latter version was published by Grotefend and Gerhardt, neither of whom knew of the existence of the autograph MS. of the *Discourse* (DM, Lestienne ed., p. 15), which was first published by Lestienne; their text of the *Discourse* was based on a fair copy, which, incidentally, does not contain the summaries of the articles. Le Roy does not distinguish between the two versions, repeating, as the text of the summary sent to Arnauld (Le Roy, pp. 80 ff.), the summaries printed in his text of the *Discourse*; these are based on Lestienne's edition. It seems, however, that a distinction should be drawn; the summary written in the MS. of the *Discourse* is Leibniz's first version, and that sent to Arnauld is a (slightly) revised version of this. What is translated here is Gerhardt's text, i.e. a copy of the summary sent to Arnauld; this is also the basis of the translation of the summary in Lucas and Grint, p. xxvii.

of creatures, an explanation of what constitutes the concept of an individual substance.

9. That each individual substance is an expression of the entire universe after its own manner, and that in its concept all events that occur in it are included with all their circumstances and the whole succession of external things.

10. That the view that there are substantial forms has some solidity, but that these forms effect no change in phenomena and must not be used to explain particular effects.

11. That the meditations of the theologians and philosophers called Scholastics are not to be totally despised.

12. That the concepts which consist in extension contain something imaginary and cannot constitute bodily substance.

13. Since the individual concept of each person contains once for all everything that will ever happen to him, one sees in it the *a priori* proofs or reasons for the truth of each event, or why one event has occurred rather than another. But these truths, though certain, are nevertheless contingent, being based on the freewill of God and of creatures. It is true that there are always reasons for their choice, but they incline without necessitating.

14. God produces different substances according to the G, p. 13
different views he has of the universe, and through God's intervention the peculiar nature of each substance has the effect that what happens to the one corresponds to what happens to all the others, without the immediate action of one upon another.

15. The action of one finite substance upon another consists only in the increase in the degree of its expression linked to the decrease in the expression of the other, in so far as God has so formed them in advance that they agree with each other.

16. The extraordinary concourse of God is included in what our essence expresses, for this expression extends to everything, but it surpasses the forces of our nature or of our

distinct expression, which is finite and obeys certain subordinate maxims.

17. Example of a subordinate maxim or[1] natural law, where it is shown that God always maintains regularly the same force but not the same quantity of movement, against the Cartesians and many others.

18. The distinction between force and quantity of motion is important, *inter alia* so that one may deem it necessary to have recourse to metaphysical considerations separate from extension in order to explain bodily phenomena.

19. Usefulness of final causes in physics.

20. Memorable passage of Socrates in Plato's *Phaedo* against unduly materialist philosophers.

21. If the rules of mechanics depended on geometry alone without metaphysics, phenomena would be quite different.

22. Reconciliation of two paths, one by way of final causes, the other by way of efficient causes, in order to satisfy both those who explain nature mechanically and those who have recourse to incorporeal natures.

23. Returning to immaterial substances, an explanation of how God acts upon the understanding of minds and whether one always has an idea of what one is thinking.

24. What is knowledge, clear or obscure, distinct or confused, adequate or inadequate, intuitive or suppositive; definition nominal, real, causal, essential.

25. In what case our knowledge is linked to contemplation of the idea.

G, p. 14 26. We have in us all ideas; and concerning Plato's reminiscence.

27. How our soul can be compared to empty tablets, and how our concepts come from the senses.

28. God alone is the immediate object of our perceptions, existing outside of us, and he alone is our light.

29. However, we think immediately through our own ideas and not through those of God.

[1] Gerhardt's text has 'du'; the MS. of the *Discourse* has 'ou', which is clearly preferable. (Cf. Le Roy, pp. 53, 81.)

30. How God inclines our soul without necessitating it; that one has no right to complain; that one must not ask why Judas sins, since this free action is included in his concept, but only why Judas the sinner is admitted to existence in preference to some other possible persons. Of original imperfection or limitation before sin, and of the degrees of grace.

31. Of the motives of election, of faith foreseen, of *scientia media*,[1] of the absolute decree, and that everything reduces itself to the reason why God has chosen and decided to admit to existence one such possible person, whose concept embraces such a succession of graces and free actions. Which straightaway puts an end to the difficulties.

32. Usefulness of these principles in questions of piety and religion.

33. Explanation of the commerce between the soul and the body that has been thought inexplicable or miraculous, and concerning the origin of confused perceptions.

[1] Leibniz's clearest explanation of the way in which he understood the term *scientia media* is to be found in the appendix to the *Theodicy*, *Causa Dei asserta per justitiam eius* (G vi. 440–1). This 'middle knowledge' is a mean between the 'knowledge of the simple intelligence' (*scientia simplicis intelligentiae*), which deals with possibles, and the 'knowledge of vision' (*scientia visionis*), which deals with actuals. *Scientia media* is knowledge *de futuris sub conditione*—i.e. of what will happen if certain conditions are fulfilled. According to Leibniz, such knowledge—the knowledge of contingent possibles—is included in the knowledge of simple intelligence, as he understands the term. He adds, however, that the term 'middle knowledge' can be retained, if required, by restricting it to truths which are possible and contingent, and the knowledge of the simple intelligence to truths which are possible and necessary. (See also *Theodicy*, pars. 39–40; *De Libertate*, Foucher de Careil, *Nouvelles lettres et opuscules inédits de Leibniz* (Paris, 1857), p. 184 (Loemker, p. 409); *Scientia Media* (1677), C 25–7; notes on Twisse, *Scientia Media* (c. 1695), Grua, p. 350.)

As Leibniz knew (C 25), the term *scientia media* was introduced by the Spanish Jesuits Molina and Fonseca; the idea of such knowledge was the basis of the Molinist solution of the problem of efficacious grace and free will, God foreseeing 'what attitude man's will would assume if a particular grace were offered to it' (Lucas and Grint, p. 51 n. 4). A full account of Leibniz's treatment of the problem will be found in Grua, *Jurisprudence*, pp. 264, 288–93; see also Friedmann, pp. 229–31.

34. Concerning the difference between minds and other substances, souls or substantial forms. And that the immortality which one requires introduces memory.

35. Excellence of minds: that God considers them in preference to the other creatures;[1] that minds are an expression of God rather than of the world, and that the other simple substances are an expression of the world rather than of God.

36. God is the monarch of the most perfect commonwealth composed of all minds, and the happiness of this city of God is his main aim.

37. Jesus Christ has revealed to men the mystery and the admirable laws of the Kingdom of Heaven and the greatness of the supreme happiness which God prepares for those who love him.

[1] Lucas and Grint (p. 60) indicate that though the rest of this sentence is printed here in all the editions, it belongs, with the material it announces, to article 36.

II

Arnauld to the Landgrave Ernst von Hessen-Rheinfels G, p. 15

Extract from a letter by M. A. A., 13 March 1686.[1]

I have received, my Lord, what Your Highness has sent me of the metaphysical thoughts of M. Leibniz as a demonstration of his affection and esteem, for which I am much obliged to him; but I have been so busy since then that I was not able to read his work until three days ago. And I am at present suffering from such a bad cold that all I can do is to say in a few words to Your Highness that I find in these thoughts so many things that frighten me and that almost all men, if I am not mistaken, will find so shocking, that I do not see what use such a work can be, which will clearly be rejected by everybody. I shall give as an example merely what he says in art. 13. 'That the individual concept of each person contains once for all everything that will ever happen to him,' etc. If that is so, God was free to create [or not create Adam; but supposing he wished to create him,][2] everything that has happened since and will ever happen to the human race was and is obliged to happen through a more than fatal necessity. For the individual concept of Adam contained the consequence that he would have so many children, and the individual concept of each of these children everything that they would do and all the children that they would have: and so on. There is therefore no more liberty in God regarding all that, supposing he wished to create Adam, than in maintaining that God was free, supposing he wished to create me, not to create a nature capable of thought. I am not able to extend that further; but M. Leibniz will understand me clearly and perhaps he

[1] Annotation on the copy sent by the Landgrave to Leibniz.
[2] The words in brackets are lacking in Leibniz's copy.

will find no obstacle in the consequence I deduce. But if he does not, he has good cause to fear that he may be alone in his opinion. And if I were mistaken in that, I would pity him still more. But I cannot forbear from pointing out to Your Highness how grieved I am because it appears to be his attachment to those opinions, which he has rightly
G, p. 16 believed one would have / difficulty in tolerating in the Catholic Church, that prevents him entering it; although, if I remember clearly, Your Highness had forced him to recognize that one cannot entertain reasonable doubts that this is the true Church.[1] Would it not be better if he abandoned these metaphysical speculations which cannot be of any use to him or to others, in order to apply himself seriously to the greatest business that he can ever have, the assurance of his salvation by returning to the Church, which the new sects have been able to quit only by becoming schismatic? I happened to read yesterday a letter of St. Augustine in which he resolves various problems put by a pagan who indicated that he wanted to become a Christian but who kept putting it off. And he says at the end these words which could be applied to our friend: 'There are innumerable questions which cannot be brought to an end until one has faith, lest life itself should end without faith.'[2]

[1] Leibniz noted in the margin of his copy: 'I have never accepted this opinion.'

[2] Sunt innumerabiles questiones, quae non sunt finiendae ante fidem, ne finiatur vita sine fide.' (St. Augustine, *Sex quaestiones contra Paganos*, Letter 102, par. 38).

III

Leibniz to the Landgrave

12 April 1686

I do not know what to say to M. A.'s letter, and I should never have believed that someone of such great and genuine reputation and from whom we have such fine reflexions on morality and logic would arrive at such hasty judgements; after that I am not surprised any more that some people have lost their temper with him. I maintain however that one must occasionally put up with the ill humour of a person of extraordinary merit, provided that his behaviour has no practical consequences, and the illusions caused by ill-founded prejudice are dissipated when he becomes fair-minded again. I await this justice from M. A. And yet whatever reason I may have for complaint, I want to omit all the reflexions which are not essential to the subject and which might provoke bitterness; but I hope that he will do the same, if he is kind enough to instruct me. I can assure him only that certain conjectures which he makes are very different from what is in fact the case, that some judicious people have expressed a different opinion, and that despite / their approval, I am not unduly eager to publish some- G, p. 17
thing on abstract subjects which are to the liking of few, since the public has yet over many years learned almost nothing of some more plausible discoveries of mine. I had written down these meditations only so as to profit privately from the opinions of the most able people and to confirm or correct my research in the most important truths. It is true that some people of intelligence have appreciated my views, but I shall be the first to disabuse them if I am able to judge that there exists the slightest objection. This is a sincere

declaration, and it would not be the first time for me to profit from the instructions of enlightened people; for this reason, if I am worthy that M. A. should exercise towards me the charity of freeing me from the errors which he thinks dangerous and whose harm I assert in good faith I am so far unable to appreciate, I shall certainly be very greatly obliged to him. But I hope that he will act with some moderation and will do me justice, since one must be just to the least of men when one has wronged him by hasty judgement.

He chooses one of my theses to show that it is dangerous. But either I am incapable for the moment of understanding the difficulty or I do not see any; which has cured me of my surprise and made me think that what M. Arnauld says is the result of mere prejudice. I shall therefore try to rid him of this strange opinion, which he has formed a little too hastily. I had said in the 13th article of my summary that the individual concept of each person contains once for all everything that will ever happen to him; from it he deduces the consequence that everything which happens to a person and even to the whole of the human race must happen through a more than fatal necessity.[1] As though concepts or previsions made things necessary, and a free action could not be included in the perfect concept or view which God has of the person to whom it will belong! And he adds that perhaps I shall not find any objection to the consequence he deduces. Yet I had expressly protested in the same article that I did not admit such a consequence. Either, then, he must doubt my sincerity, for which I have given him no cause, or not have sufficiently examined what he denied. I shall not however find fault with this, as it seems that I might justifiably do, because I consider that he was writing at a time when some discomfort did not leave his mind
G, p. 18 fully free, as / his letter itself indicates. And I want to let it be known how much respect I have for him.

[1] Cf. p. 9.

I come to the proof of his inference, and so as to answer it better, I shall give M. Arnauld's own words.[1]

'If that is so' (namely, that the individual concept of each person contains once for all everything that will ever happen to him), 'God was not free to create everything that has since happened to the human race, and everything that will ever happen to it is obliged to happen through a more than fatal necessity' (there was some fault in the copy, but I think I can restore it in the way I have just done).[2] 'For the individual concept of Adam contained the consequence that he would have so many children (I agree), and the individual concept of each of these children everything that they would do and all the children that they would have, and so on (I agree to this too, for it is only my thesis applied to a particular case). There is therefore no more liberty in God regarding all that, supposing he wished to create Adam, than in maintaining that God was free, supposing he wished to create me, not to create a nature capable of thought.'[3] These last words must contain properly the proof of the inference, but it is very manifest that they confuse hypothetical necessity[4] with absolute necessity. One has always distinguished between what God is free to do absolutely and what he has obliged himself to do by virtue of certain decisions already taken, and he scarcely takes any which do

[1] This sentence seems to have been inadvertently omitted by Gerhardt; it is to be found not only in Le Roy (p. 86) but also in the earlier edition of Prenant (p. 133).

[2] Cf. p. 9 n. 2 above. This error was noted by Leibniz only in the copy of the letter sent to Arnauld: the Hanover MS. contains the faulty reading 'Dieu a esté libre de creer', for 'Dieu n'a pas esté libre de creer'. Gerhardt corrects this on the basis of the edition of von Rommel (*Leibniz und Landgraf Ernst von Hessen-Rheinfels* (Frankfurt am Main, 1847), vol. ii, p. 82), which was based on the actual letter.

[3] Cf. p. 9. The passage from 'For the individual concept' is translated from the footnote to Gerhardt's text, which is based on the Hanover MS. In the body of the text, Gerhardt continues to reproduce the von Rommel edition, which leads him to print a faulty version of the last sentence (viz. 'There is therefore . . .').

[4] 'necessitatem ex hypothesi'.

not already have a universal import. It is unworthy of God to conceive of him (on the pretext of upholding his liberty) after the manner of certain Socinians,[1] as a man who takes decisions according to the circumstances and who now would no longer be free to create what he considers good, if his first decisions regarding Adam or others already include a connexion with what concerns their posterity, whereas everyone agrees that God has regulated from all eternity /
G, p. 19 the whole successive course of the universe without suffering a diminution of his liberty in any way because of that. It can also be seen that this objection separates God's acts of will one from another, yet they are all interrelated. For one must not consider God's will to create a particular Adam as separate from all the others which he has regarding Adam's children and the whole of the human race, as if God in the first place were to decree that Adam should be created without any relation to his posterity and yet by that act, in my opinion, were to take away from himself the freedom to create Adam's posterity as he thinks fit, which is very strange reasoning. But one must rather consider that God, choosing not an indeterminate Adam, but a particular Adam of whom a perfect representation exists among the possible beings in God's ideas, accompanied by particular individual circumstances and possessing among other predicates also that of having in the course of time a particular posterity; God, I repeat, choosing him is already taking his posterity into consideration and is choosing both at the same time. In this I cannot understand how there may be any harm. And if he were to act otherwise, he would not act as God. I shall make use of a comparison. A wise prince who chooses a general whose connexions he knows chooses in effect at the same time a number of colonels and captains who he well knows will be recommended by this general and whom he will not want to deny him for certain reasons of

[1] Disciples of Lelio and Fausto Sozini (Socinus), two Italian theologians of the sixteenth century. Socinian teaching stressed the denial of the Trinity and of Christ's divinity.

prudence, which do not however destroy his absolute power or his liberty: *a fortiori*, all this holds in the case of God. In order therefore to proceed with exactitude, one must consider in God a certain more general and more comprehensive will which he has regarding the whole order of the universe, since the universe is like a totality which God penetrates with a single view; for this will virtually includes the other acts of will, concerning what enters into this universe, amongst them that of creating a particular Adam who is related to the succession of his posterity, which God has also chosen to be thus; and one can even say that these particular acts of will differ from the will in general only by a simple relationship, and more or less as the situation of a town looked at from a certain viewpoint differs from its ground plan; for the acts of will are all an expression of the whole universe, as each situation is an expression of the town. Indeed the wiser one is, the fewer separate acts of will one has and the more one's views and acts of will are comprehensive and linked together. And each particular act of will contains a connexion with all the others, so that they may be harmonized to the greatest possible degree. Very far from finding / something shocking in that, I should think that the G, p. 20
opposite destroys God's perfection. And in my view one must be very fastidious or very prejudiced to find in such innocent, or rather, such reasonable opinions the cause for making exaggerated statements as strange as those which have been sent to Your Highness.

Furthermore, if one thinks at all about what I am saying, one will find that it is evident from the terms themselves.[1] For by the individual concept of Adam I mean, to be sure, a perfect representation of a particular Adam who has particular individual conditions and who is thereby distinguished from an infinite number of other possible persons who are very similar but yet different from him (as every ellipse is different from the circle, however much it approximates to it), and to whom God has preferred him, because

[1] 'ex terminis'.

it has pleased God to choose precisely this particular order of the universe; and all that follows from his decision is necessary only by a hypothetical necessity and does not at all destroy God's liberty or that of created minds. There is a possible Adam whose posterity is thus, and an infinite number of other Adams whose posterity would be different; is it not true that these possible Adams (if one may so call them) differ among themselves and that God has chosen just one who is precisely our Adam? There exist so many reasons to prove the impossibility, not to speak of the absurdity and even impiety of the contrary, that I believe all men are fundamentally of the same opinion when they think a little about what they are saying. Perhaps too if M. A. had not conceived the prejudice about me that he formed at first, he would not have found my propositions so strange and would not have deduced such consequences from them.

I believe in good faith that I have satisfied M. Arnauld's objection, and I am very glad to see that the place he chose as one of the most shocking is so little so in my opinion. But I do not know if I shall be fortunate in contriving to have M. Arnauld recognize it too. Great merit has a thousand advantages, and with them the one small defect that people endowed with it, justifiably trusting their own opinions, are not easily disabused. I myself, not possessing such a nature, would take pride in confessing that I have been better instructed, and I would even find pleasure in it, provided I can say it sincerely and without flattery.

Moreover, I want M. Arnauld to know that I do not in the least pretend to the glory of being an innovator, as he seems to have construed my views. On the contrary I
G, p. 21 normally find that the / oldest and most commonly received opinions are the best. And I do not think that one can be accused of being an innovator when one produces only a few new truths, without overturning established opinions. For that is what geometers do and all who penetrate more deeply. And I do not know if it will be easy to indicate

authorized opinions which mine oppose. That is why what M. Arnauld says of the Church has nothing in common with these meditations, and I hope he is not willing or able to affirm that there is anything at all in them which could be called heretical in any Church at all. However, if the one to which he belongs were so prompt to censure, such a proceeding should serve as a warning for one to be on one's guard. And as soon as one wished to produce some meditation bearing the slightest connexion with religion and going a little beyond what is taught to children, one would be in danger of getting into trouble, unless one had some Father of the Church as authority who says the same thing in so many words;[1] although even that might not suffice for a complete assurance, especially when one does not have the means to ensure that one will be dealt with gently.

If Your Supreme Highness were not a prince whose learning is as great as his moderation, I would have taken good care not to tell him of these things; on whom better now to rely than on him, and since he has had the goodness to act as a link in this exchange, could one without imprudence go and choose another referee? More especially because it is not so much the truth of a few propositions which is at stake as their implications and tolerability, I do not think that he approves of people being crushed for so little reason. But perhaps too M. A. spoke in these harsh terms only because he believed that I would admit the consequence that he rightly considers terrifying, and will change his language after my words of enlightenment, to which his own equitable outlook will be able to contribute as much as Your Highness' authority. I am devotedly, etc.

[1] 'in terminis'.

IV

G, p. 22

Leibniz to the Landgrave

12 April 1686

I have received M. Arnauld's opinion and I consider it to the point to disabuse him, if I can, by the paper enclosed in the form of a letter to Your Supreme Highness; but I confess that I had great difficulty in suppressing the desire I had by turns to laugh and to show pity, when I saw that this good man appears indeed to have lost part of his understanding[1] and cannot avoid exaggerating everything, just like melancholic people for whom everything that they see or think appears black. I have maintained a great deal of moderation towards him, but I have not failed to let him know gently that he is wrong. If he is good enough to extricate me from the errors which he attributes to me and thinks he sees in my writings, I should desire him to omit the personal reflections and harsh expressions which I have concealed out of the respect which I bear for Your Supreme Highness and the regard which I have had for the good man's ability. Yet I wonder at the difference that exists between our would-be saints[2] and the people of the world who do not share their point of view and yet are much more completely possessed of its consequences. Your Supreme Highness is a sovereign prince, and yet he has shown for me an admirable moderation, and M. Arnauld is a famous theologian whose meditations upon divine matters should have made him gentle and charitable; but what emanates from him often appears proud, unsociable and harsh. I am not astonished now that he has quarrelled so easily with Father Malebranche and others who were close friends of his. Father Malebranche had published writings which M. Arnauld

[1] 'lumières'. [2] 'Santons'.

called extravagant, more or less as he is doing with me, but the world has not always agreed with him. One must however be careful not to irritate his bilious temperament. That would deprive us of all the pleasure and satisfaction which I had expected from a sweet and reasonable collation. I think he received my paper when he was in an ill humour, and being annoyed on that account he wanted to get his own back by a / brusque response. I know that if Your G, p. 23
Supreme Highness had the time to think about the objection he is raising to my work, he could not avoid laughing when he sees how little reason there is for uttering such tragic exclamations, very much as one might laugh at an orator who keeps saying, 'Oh sky, oh earth, oh seas of Neptune!'[1] I am happy if there is nothing more shocking or difficult in my thoughts than what he finds objectionable. For if what I say is true (that the individual concept or consideration of Adam contains everything that will happen to him and his posterity), it follows, according to M. A., that God will no longer be free now where the human race is concerned. He therefore imagines God as a man who takes decisions according to the circumstances, whereas God, foreseeing and regulating everything from all eternity, chose in the first place the whole successive connexion of the universe, and in consequence not just an Adam but a particular Adam whom he foresaw as doing particular things and having particular children without this divine providence regulated from all time running counter to his freedom. On this point all theologians (except some Socinians[2] who conceive of God along human lines) are in agreement. And I am surprised that the desire to find something shocking in my thoughts, of which prejudice had created in his mind a confused and ill-digested idea, has prompted this scholarly man to utter opinions contrary to his own learning and opinions. For I am not so biased as to imitate him and ascribe to him the dangerous dogma of those Socinians which destroys God's

[1] 'O coelum, ô terra, ô maria Neptuni!'
[2] Cf. p. 14, n 1.

sovereign perfection, although he seems almost to lean in that direction in the heat of the debate.

Every man who acts with wisdom considers all the circumstances and relationships of the decision he is taking, in accordance with the degree of his capability. And can God, who sees everything perfectly and with a single view, fail to have taken decisions in conformity with everything that he sees? And can he have chosen a particular Adam without also considering and deciding everything that is connected with him? And consequently it is ridiculous to say that this free decision of God deprives him of his liberty.[1] Otherwise one would have to be constantly undecided in order to be free. Here are the shocking thoughts to be found in M. Arnauld's imagination. We shall see whether he can by inferences extract from them something worse.

But my most important thought on the subject is that he himself formerly wrote to Your Supreme Highness explicitly
G, p. 24 stating that one would not on account of / philosophical opinions trouble a man who was in their Church or who wanted to join it; and there he is himself now forgetting this moderate attitude and becoming angry over a trifle. It is therefore dangerous to become compromised with such people, and Your Supreme Highness sees how necessary it is to take precautions. Consequently, that was one of my reasons for communicating these things to M. Arnauld, to sound him out a little and to see how he would act, but 'touch the hills and they will smoke'.[2] The moment one deviates even a little from the opinion of some scholars, they explode in thunder and lightning. I firmly believe that the world would not share his opinion, but it is always well to be on one's guard. However, Your Highness will perhaps have the opportunity to point out to him that acting in this way rebuffs people unnecessarily, so that in future he may behave with a little more moderation. Your Highness has apparently exchanged letters with him concerning the

[1] Punctuation corrected in accordance with Le Roy edition (p. 91).
[2] 'tange montes et fumigabunt': a transposition of Psalm 104, v. 32.

means of constraint, and I should like to hear what resulted from them.

Moreover, His Supreme Highness my master has now gone to Rome and apparently will not return to Germany as early as had been thought. One of these days I shall go to Wolfenbüttel and do all I can to recover Your Highness' book. It is said that there is a History of Modern Heresies by M. Varillas.[1] The letter from Maastricht which Your Highness has sent me about the conversions at Sedan seems to be very reasonable. M. Maimbourg,[2] it is said, relates that St. Gregory the Great also endorsed the principle that one must not be upset if the conversions of heretics are feigned, provided that one is really gaining their descendants by that method. But one may not kill some souls in order to win others,[3] although Charlemagne treated the Saxons in very much the same way by forcing them, with swords at their throats, to accept the Christian religion. We have here at present M. Leti,[4] who has brought us his 5-volume History of Geneva, dedicated to the House of Brunswick. I do not know what connexion he found there. He says quite nice things sometimes, and is a good conversationalist. I am, etc.

[1] Antoine Varillas, *Histoire des révolutions arrivées dans l'Europe en matière de religion* (Paris, 6 vols., 1686–8).

[2] Father Louis Maimbourg, S. J. (1610–86).

[3] Leibniz's draft copy ends here: the rest is supplied by von Rommel in his edition of the correspondence.

[4] Gregorio Leti (1630–1701). The work referred to is his *Historia Genevrina* (Amsterdam, 1686).

V

G, p. 25

Leibniz to the Landgrave

5/15 April 1686

Your Supreme Highness will have received the letter which I sent by the last post, together with what I enclosed in the form of a letter to Your Highness, a copy of which might be transmitted to M. A. Since then I have reflected that it would be better to remove these words towards the end:[1] 'However, if the one to which he belongs were so prompt to censure, such a proceeding should serve as a warning', etc., down to the words: 'especially when one does not have the means to ensure that one will be dealt with gently',[2] for fear that M. A. may seize the opportunity to enter into controversy as though the Church had been attacked, which is not in the least involved. In the copy these words might be substituted: 'and least of all in M. A.'s communion, where the Council of Trent as well as the Popes have very wisely contented themselves with censuring those opinions where there are manifestly things which appear to be contrary to faith and morals without examining in detail the philosophical consequences; for if one had to listen to these, when it came to censures the Thomists would appear to be Calvinists according to the Jesuits, the Jesuits would appear to be Semi-Pelagians[3] according to the Thomists, and both would be destroying liberty according

[1] In fact, the original text was transmitted. Cf. Lewis, p. 32 n.(*b*).

[2] Cf. p. 17.

[3] This term was coined by the followers of the Spanish theologian Domingo Bañez (1528–1604) to refer to the Molinists, on the grounds that they said that grace was 'efficacious' by consent of the will. (Cf. Grua, pp. 226, 230; Grua, *Jurisprudence*, p. 482).

to Durandus[1] and Father Louys de Dole;[2] and in general every absurdity would appear to be an atheistic proposition, because one can demonstrate that it would destroy the nature of God'.

[1] Durandus de Saint-Pourçain (c. 1270–1332) argued that 'the concourse of God with the creature (I mean the physical concourse) is only general and mediate; that God creates substances, and gives them the force they need, and that after that he leaves them alone, and only conserves them, without helping them in their actions' (*Theodicy*, par. 27; cf. op. cit., pars. 361, 381, and Grua, pp. 352–7).

[2] Louis de Dole (d. 1636) was the author of *Disputatio quadripartita de modo conjunctionis concursuum Dei et creaturae ad actus liberos ordinis naturalis* (1634), in which he argued that there is no reason to suppose God's immediate co-operation in the natural order. Cf. *Theodicy*, pars. 27, 381, and Grua, p. 39.

VI

Arnauld to Leibniz

13 May 1686

I thought it necessary to write to you personally in order to ask your forgiveness for giving you cause to be annoyed
G, p. 26 with me when / I used unduly harsh terms to indicate what I thought of one of your opinions. But I protest to you before God that the error which I may have committed thereby did not arise out of any prejudice against you, since I have never had reason to hold anything but a very favourable opinion of you outside the religion to which you have found yourself committed by your birth; nor was I in an ill humour when I wrote the letter which offended you, because nothing is further from my character than the irritability which some people are pleased to ascribe to me; nor was I, because of an excessive fondness for my own thoughts, shocked to see that you had opposing ones, since I can assure you that I have meditated so little on this sort of subject that I can say that I have no fixed opinion on the matter. I beg you, Sir, to believe none of these things about me, but to be persuaded that the cause of my tactlessness is entirely that since I am used to writing without formality to His Highness because he is good enough to forgive me easily all my faults, I had imagined that I could tell him frankly what I had not been able to agree with in one of your thoughts, because I was quite sure that that would not be spread abroad, and that if I had misunderstood your meaning, you might disabuse me without its going any further. But I hope, Sir, that the same Prince will be willing to exert himself in making peace for me, and that I shall be able, in enlisting him, to make use of the words that St. Augustine once uttered on a similar occasion. He had

written very harshly against those who believe that one can see God with the eyes of the body, which was the opinion of an African bishop who, when he saw this letter which was not addressed to him, was very offended. This forced the Saint to employ a common friend to appease this prelate, and I beg you to look upon what St. Augustine writes to this friend to be said to the bishop as though I were saying it to the Prince to be said to you: 'In my concern with giving a warning, I overstepped the mark in my reproaches and was inconsiderate. This I do not defend, but reprehend; this I do not excuse, but accuse. I beg him to forgive me; let him remember our former friendship and forget the recent offence. Let him do what he is angered to find I did not do: let him show in pardoning me the moderation which I lacked when I composed that letter.'[1]

I have had doubts about whether I should leave the matter there without again embarking / upon an examina- G, p. 27
tion of the question which has occasioned our quarrel, for fear that some word might again escape me which could give you offence. But on the other hand I fear that this would not show a high enough opinion of your impartiality. So I shall simply state the difficulties I still find about this proposition: 'The individual concept of each person contains once for all everything that will ever happen to him.'[2]

It seemed to me to follow from that, that the individual concept of Adam contained the consequence that he would have so many children, and the individual concept of each of these children everything that they would do and all the children they would have, and so on. From which I thought it could be inferred that God was free to create or not to

[1] 'Dum essem in admonendo sollicitus, in corripiendo nimius atque improvidus fui. Hoc non defendo, sed reprehendo: hoc non excuso, sed accuso. Ignoscatur, peto: recordetur nostram dilectionem pristinam, et obliviscatur offensionem novam. Faciat certe, quod me non fecisse succensuit: habeat lenitatem in danda venia, quam non habui in illa epistola conscribenda' (St. Augustine, *Augustinus Fortunatiano episcopo Siccensi*, Letter 148, par. 4).

[2] Cf. p. 5.

create Adam; but that supposing he wished to create him, everything that has happened since to the human race was and is obliged to happen through a fatal necessity; or at least that there is no more liberty for God regarding all that, supposing he wished to create Adam, than not to create a nature capable of thought, supposing he wished to create me.[1]

It does not seem to me, Sir, that in speaking thus I have confused hypothetical necessity[2] with absolute necessity. For on the contrary I never talk about anything there except hypothetical[3] necessity. But I find it merely strange that all human events are as necessary by hypothetical necessity[4] from this single supposition that God wished to create Adam, as it is necessary by hypothetical necessity[5] that there was in the world a nature capable of thought from the supposition alone that he wished to create me.

On this subject you say various things about God which do not seem to me to be enough to resolve my difficulty.

1. 'That one has always distinguished between what God is free to do absolutely and what he has obliged himself to do by virtue of certain decisions already taken.'[6] That is certain.

2. 'That it is unworthy of God to conceive of him (on the pretext of upholding his liberty) after the manner of the Socinians, as a man who takes decisions according to the circumstances.'[7] That thought is very foolish: I agree.

3. 'That one must not separate God's acts of will which / yet are all interrelated. And that thus one must not consider God's will to create a particular Adam as separate from all the others which he has regarding Adam's children and the whole of the human race.'[8] On this too I am in agreement.

G, p. 28

[1] Cf. p. 9.
[2] 'necessitatem ex hypothesi'.
[3] 'ex hypothesi'.
[4] 'necessitate ex hypothesi'.
[5] ibid.
[6] Cf. p. 13.
[7] Cf. p. 14.
[8] Ibid.

But I do not yet see that that can help to resolve my difficulty.

For (1) I confess in good faith that I did not understand that by the individual concept of each person (for example of Adam), which you say contains once for all everything that will ever happen to him, you had meant this person in so far as he exists in the divine understanding, but this person in so far as he exists in himself. For it seems to me that one does not customarily consider the specific concept of a sphere in relation to the way it is represented in the divine understanding, but in relation to what it is in itself: and I thought that this was the case for the individual concept of each person or of each thing.

2. However, it is enough for me to know that this is your idea to make me fall in with it, while trying to discover whether this clears up the whole difficulty I have on the subject; but so far I cannot see that.

For I agree that the knowledge God had of Adam when he decided to create him contained the knowledge of everything which has happened to him, of everything which has happened and is to happen to his posterity; and so taking the individual concept of Adam in this sense, what you say about it is very certain.

I likewise admit that the act of will which he had to create Adam was not separate from the one he had regarding what has happened to him and regarding the whole of his posterity.

But, it seems to me, after that one must still ask (and this is the source of my difficulty) if the connexion between these objects (namely, Adam on the one hand, and everything that was to happen to him and his posterity on the other) exists as such of itself, independently of all the free decrees of God, or if it was dependent upon them: that is to say, if it is only as a consequence of the free decrees whereby God ordered everything that would happen to Adam and his posterity that God knew everything that would happen to Adam and his posterity: or if there exists, independently of these

decrees, an intrinsic and necessary connexion between Adam on the one hand, and what has happened and will happen to him and his posterity on the other. Without this
G, p. 29 latter proviso I do not see / how what you say can be true, 'that the individual concept of each person contains once for all everything that will ever happen to him',[1] even taking this concept in relation to God.

It seems too that you insist on this last proviso; for I think you suppose that in the light of our understanding possible things are possible prior to all the free decrees of God: from which it follows that what is contained in the concept of possible things is contained there independently of all the free decrees of God. Now you suppose 'that God found among possible things a possible Adam accompanied by particular individual circumstances, and that he possesses amongst other predicates also that of having in the course of time a particular posterity'.[2] Thus in your opinion there exists an intrinsic connexion, so to speak, independent of all God's free decrees, between this possible Adam and all the individuals comprising the whole of his posterity, and not only the people but in general everything that was to happen to them. Now this, Sir, is, frankly, what I cannot understand. For it seems to me that according to you the possible Adam (whom God chose in preference to other possible Adams) was linked to all the selfsame posterity as the created Adam; since he is, in your opinion, so far as I can judge, merely the same Adam considered now as possible and now as created. Now, if that supposition is true, here is my difficulty.

How many men have come into the world only through very free decrees of God, like Isaac, Samson, Samuel and so many others? When therefore God knew them conjointly with Adam, that was not because they were contained in the individual concept of the possible Adam independently of God's decrees. So it is not true that all the individuals of

[1] Cf. p. 5. [2] Cf. p. 14.

Adam's posterity were[1] contained in the individual concept of possible Adam, since they would have had to be contained in it independently of the divine decrees.

The same can be said about an infinite number of human events which have occurred through very particular orders of God, like, among others, the Judeo-Christian religion and above all the Incarnation of the Divine Word. I do not know how it could be said that all this was contained in the individual concept of the possible Adam, seeing that what is considered as / possible must have all that one conceives G, p. 30
of as belonging to it under this concept independently of the divine decrees.

Besides, Sir, I do not know how by taking Adam as the example of a singular nature one[2] can conceive of many possible Adams. It is as though I were to conceive of many possible varieties of myself,[3] which is certainly inconceivable. For I cannot think of myself without considering myself as a singular nature, so distinct from any other existing or possible that I can as little conceive of different varieties of myself as of a circle whose diameters are not all of equal length. The reason is that these different varieties of myself would all be distinct one from another, otherwise there would not be many of them. Thus one of these varieties of myself would necessarily not be me: which is manifestly a contradiction.

Let me, Sir, now transfer to this version of myself what you say about Adam, and judge yourself whether that could be maintained. Amongst possible beings God found in his ideas many versions of myself, one of which possesses the predicates of having several children and being a doctor, and another of living in celibacy and being a theologian. And having decided to create the latter, the version of myself which now exists contains in its individual concept the notion of living in celibacy and being a theologian,

[1] 'ayant' (Gerhardt): corrected according to Le Roy (p. 97).
[2] 'ont' (Gerhardt): corrected according to Le Roy (p. 97).
[3] 'plusieurs moi possibles'.

whereas the former would have contained in its individual concept that of being married and a doctor. Is it not clear that there would be no sense in this discourse: because since my self is necessarily a particular individual nature, which is the same thing as having a particular individual concept, it is as impossible to conceive of contradictory predicates in the individual concept of myself as to conceive of a variety of myself different from me. From this one must conclude, I think, that since it is impossible that I should not always have remained myself, whether I had married or lived in celibacy, the individual concept of myself contained neither of these two states; just as it is well to conclude: this square of marble is the same whether at rest or in motion; so neither rest nor motion is contained in its individual concept. That is why, Sir, it seems to me that I must consider as contained in the individual concept of myself only that which is such that I should no longer be me if it were not in me: and that all that is to the contrary such that it could be
G, p. 31 or not be in me without my ceasing / to be me, cannot be considered as being contained in my individual concept; although through the order of God's providence which does not change the nature of things, it cannot happen for that not to be in me. That is my idea, which I think conforms to everything which has ever been believed by all the philosophers in the world.

What bears out my view is that I find it hard to believe that good philosophy consists in seeking out in the way God knows things what we are to think either of their specific or of their individual concepts. Divine understanding is the rule of the truth of things, as they are in themselves,[1] but so long as we are in this life it does not seem to me that it can be the rule as far as we are concerned.[2] For what do we know at present of God's knowledge?[3] We are aware that he knows all things, and knows them all by a single and very simple act which is his essence. When I say that we are

[1] 'quoad se'.
[2] 'quoad nos'.
[3] 'la science de Dieu'.

aware of it, I mean that we are assured that it must be so. But do we understand it? and must we not recognize that however assured we are that that is the case, it is impossible for us to conceive how that can be so? Similarly, can we conceive that whereas God's knowledge[1] is his very essence, wholly necessary and immutable, he nevertheless knows an infinite number of things that he might not have known, because these things might not have been? The same holds true for his will, which is also his very essence and contains nothing that is not necessary. And yet he wills and has willed from all eternity things that he might not have willed. I also find many uncertainties in the way in which we normally represent God as acting. We imagine that before he willed the creation of the world he envisaged an infinite number of possible things amongst which he chose some and rejected others: many possible Adams, each with a great succession of people and events, with which he has an intrinsic connexion: and we suppose that the connexion of all these other things with one of these possible Adams is quite like the connexion which we know the created Adam to have had with the whole of his posterity; which makes us think that this is the one amongst all the possible Adams that God chose and that he did not want any of the others. But without insisting upon what I have already said, that taking Adam as the example of a singular nature, it is as impossible to conceive of many Adams as of many varieties of myself: I confess in good faith / that I have no conception G, p. 32
of these purely possible substances, that is to say the ones that God will never create. And I am very much inclined to think that they are figments of the imagination that we create, and that what we call possible, purely possible, substances cannot be anything other than God's omnipotence, which being a pure act does not permit the existence in it of any possibility: but one can conceive of possibilities in the natures which he has created, because since they are not being itself by essence, they are necessarily made up of

[1] ibid.

potency and act, which allows me to conceive of them as possible, as I can also do with an infinite number of modifications which are in the power of these created natures, such as the thoughts of intelligent natures and the forms of extended substance. But I am much mistaken if there is anyone who dares to say that he can conceive of a possible, purely possible, substance. For I am convinced in my own mind that although one talks so much of these purely possible substances, nonetheless one never conceives of any of them except according to the notion of one of those which God has created. One might therefore say, it seems to me, that except for the things which God has created or is to create, there is no passive possibility but only an active and infinite potency.

Be that as it may, all that I wish to infer from this obscurity and from the difficulty of knowing in what way things exist in God's knowledge[1] and the nature of the connexion between them and whether it is intrinsic or extrinsic, so to speak; all that I wish to infer, as I say, is that it is not in God, who dwells in a light inaccessible to us, that we must seek out the true concepts, specific or individual, of the things that we know, but in the notions of them that we find in ourselves. Now, I find in myself the concept of an individual nature, since I find there the concept of myself. I have only to consult it, therefore, to know what is contained in this individual concept, as I have only to consult the specific concept of a sphere to know what is contained in it. Now, I have no other rule for that than to consider what is such that a sphere would no longer be a sphere if it did not possess it, such as having all the points of its circumference equidistant from the centre, or what would not cause the sphere to cease to be a sphere, such as being only one foot in diameter whereas another sphere might be ten or a
G, p. 33 hundred feet. / On that evidence I decide that the former is contained in the specific concept of a sphere and that the latter, the question of having a larger or smaller diameter, is

[1] 'la connaissance de Dieu'.

not contained therein. I apply the same rule to the individual concept of myself. I am assured that as long as I think, I am myself. For I cannot think that I do not exist, nor exist so that I be not myself. But I can think that I shall or shall not take a particular journey, while remaining very much assured that neither one nor the other will prevent my being myself. So I remain very much assured that neither one nor the other is included in the individual concept of myself. But, will it be said, God foresaw that you will take this journey? Agreed. It is thus beyond doubt that you will take it. Agreed again. Does that at all change the certainty I have that whether I take it or not I shall always be myself? I must therefore conclude that neither one nor the other enters into my self, that is to say into the individual concept of me. It is there, I feel, that one must stop, without resorting to God's knowledge[1] to learn what the individual concept of each thing contains.

These, Sir, are the ideas that have occurred to me about the proposition which had troubled me and the explanation of it you have given. I do not know if I have properly understood your thought, but that at least has been my intention. This subject is so abstract that one can easily fall into error; but I should be very sorry if you were to form of me an opinion as unkind as do those who portray me as an irascible writer who can never refute people without pouring calumny upon them and deliberately misrepresenting their opinions. That is certainly not my nature. I may sometimes express my thoughts too frankly. I may also sometimes not properly understand the thoughts of others (for to be sure I do not think that I am infallible, and one would need to be in order never to make a mistake), but even if it were only out of self-respect, I should never misunderstand them deliberately, since I consider nothing so base as to employ chicanery and artifice in the disputes that one may have over doctrinal matters, even though it might be with people whom we would not, moreover, have any reason to

[1] ibid.

love, and all the more so when it occurs with friends. I think, Sir, that you want me to number you amongst the latter. I cannot doubt that you do me the honour of your friendship. You have given me too many indications of it. And for myself, I protest that the very fault which I beg you
G, p. 34 once again to / forgive me is only the result of the affection which God has given me for you and of a zeal for your salvation which was perhaps not moderate enough. I am, etc.

VII

Arnauld to the Landgrave

13 May 1686

I am very sorry, my Lord, to have given M. Leibniz cause to be so angry with me. If I had foreseen it, I should have taken great care not to say so frankly what I thought of one of his metaphysical propositions; but it was my duty to foresee it, and I was wrong to employ terms so harsh, not against him personally but against his opinion. So I felt myself obliged to ask his pardon, and I have done so very sincerely in the letter that I am writing to him and sending open to Your Highness. I beg you also well and truly to make my peace with a former friend, whom I should be very sorry to have turned into an enemy by my imprudence: but I shall be very glad if it stops there and I am no longer obliged to tell him what I think of his opinions, for I am so overwhelmed with other affairs that I should have trouble in satisfying him, as these abstract topics require much application and would infallibly take up a lot of my time.

I do not know if I forgot to send you an addition to the *Apology for the Catholics*.[1] I am afraid so, because Your Highness has not mentioned it to me. That is why I am sending him it today with two pamphlets. The Bishop of Namur whom the Internuncio has appointed as judge is having difficulty in deciding to accept this commission, so great is the fear the Jesuits stir up, but if their power is so great that one cannot obtain justice against them in this world, they have reason to be apprehensive that God might punish them all the more severely in the next. The tale of this canon whose debauches would apparently go unpunished if he had

[1] The *Apologie pour les catholiques* appeared originally in 1681–2 (Liège, 2 vols.). This may be the *Seconde Addition* (n.p., ?1685).

not made himself odious by his deceit and intriguing is a terrible and very important one. This Lutheran minister
G, p. 35 whom Your Highness speaks of must have / good qualities, but it is incomprehensible and reveals a truly blind prejudice that he can look upon Luther as a man destined from God for the Reformation of the Christian religion. He must have a very mean idea of true piety to find it in a man such as that, who talked rashly and lived so gluttonously. I am not surprised at what this minister has told you in disparagement of those who are called Jansenists, seeing that Luther first put forward extravagant propositions against the co-operation of grace and against free will, to the point of entitling one of his books *De servo arbitrio*.[1] Melanchthon[2] toned them down considerably some time later, and since then the Lutherans have gone to the other extreme, so that the Arminians[3] had nothing better to put up in opposition to the Gomarists[4] than the opinions of the Lutheran Church. So there is no cause to be astonished if the present-day Lutherans, who share the Arminians' opinions, are opposed to St. Augustine's disciples. For the Arminians are more sincere than the Jesuits. They admit that St. Augustine is not on their side in the views which they hold in common with the Jesuits, but they do not consider themselves obliged to follow him. Father Jobert's report on the new converts gives grounds for hope that those who are only nominally so can return gradually to the Church[5] if only one takes pains with their instruction, edifying them with good examples and filling the benefices[6] with responsible individuals; but it would spoil everything to take away from them the

[1] Wittemberg, 1525.

[2] German theologian (1497–1560).

[3] Disciples of Jakobus Arminius (1560–1609), the Dutch theologian who founded the anti-Calvinistic school in Reformed theology.

[4] Disciples of Franz Gomarus (1563–1641), the Dutch theologian who became the leader of the opponents of Arminius.

[5] 'to the Church' does not appear in the original text.

[6] 'cures', i.e. with specific reference to responsibility for the welfare of souls.

translations into the vernacular of everything that is said in the Mass. Only that can cure them of the aversion for it that has been inculcated in them. But we have not yet heard the outcome of the storm stirred up against the *Année Chrétienne*, about which I wrote to Your Highness previously quite some time ago. A gentleman called M. Cicati who runs the Academy in Brussels and says he is well known to Your Highness because he had the honour of teaching your sons[1] how to ride, is acquainted with a very well-bred German who has an excellent knowledge of French and is a good jurist, having even held the post of Councillor, and who has already been employed in the direction of young noblemen. He thinks that he would be well suited to your grandsons,[2] especially when they travel in France, and that even in the meantime he could render Your Highness other services. He adds that he is not self-seeking and will not ask a fee so high as to inconvenience Your Highness. I thought that it could not / hurt to ask your opinion, that does not bind you to G, p. 36
anything and may be of use to you, if you feel yourself bound to provide the young princes with someone who will be constantly with them. As I do not know M. Leibniz's titles, I beg Your Highness to add the address to the letter which I am writing to him.

[1] 'aux Princes Ses fils'.
[2] 'auprès des Princes Ses petits-fils'.

VIII

The Landgrave to Leibniz

Rheinfels, 21/31 May 1686

You will see from the enclosed letters that the good M. Arnauld considers it almost his duty to take the opposite course to what the Jesuit Father Hazard refuses to do, what I should like him to do and what the gentlemen at Wolfenbüttel do not do, to ensure the return once for all[1] and by your hands of my book, the second part of the *Apology for the Catholics*, about which I neither read nor hear any news at all. Moreover, amongst the simple, ill-informed Catholics there are hopes, wishes, desires and rumours of the conversion of your master and his family, to the same extent that there have been fears amongst the Protestants about the Elector of Saxony's conversion, although there is equally no sign of it in the one as in the other—at least there are no supernatural motives inclining them to it so far. For in order to become a good and true Catholic one must possess something other than ambitious views, temporal avarice, ostentation and worldly carousing. In three weeks' time we shall see whither the Christian army in Hungary will turn its face and whether one will wish to defer till another time putting the siege at Buda to the test;[2] for moving away from the Danube is courting disaster. We hope to remain in peace this year on this side of the Rhine. I remain for you, as you know, etc.

My Lord the Duke Anton Ulrich[3] has stopped writing to me, I hope nonetheless that I am not out of favour with him and that he is very busy with other matters that are more important to him than my correspondence.

[1] 'for all' does not appear in the original text.

[2] Buda was recaptured from the Turks in 1686.

[3] Duke of Braunschweig-Wolfenbüttel (1633–1714).

IX

G, p. 37

Remarks upon M. Arnauld's letter concerning my proposition: that the individual concept of each person contains once for all everything that will ever happen to him

'I thought', says M. Arnauld, 'it could be inferred that God was free to create or not to create Adam, but that supposing he wished to create him, everything that has happened since to the human race was and is obliged to happen through a fatal necessity, or at least that there is no more liberty for God regarding all that, supposing he wished to create Adam, than not to create a nature capable of thought, supposing he wished to create me.'[1] I had replied first of all that a distinction must be made between absolute and hypothetical necessity.[2] M. Arnauld counters this by saying here 'that he is talking only about hypothetical necessity'.[3] With this declaration, the discussion changes its complexion. The term 'fatal necessity' which he had used and which is usually taken to indicate only an absolute necessity had forced me to this distinction, which ceases to exist now, the more so as M. Arnauld does not insist on fatal necessity,[4] since he speaks of alternatives: by a fatal necessity[5] or at least, etc. So it would be useless to argue over the word. But as for the matter itself, M. Arnauld still finds strange what I apparently maintain, 'that all human events occur by hypothetical necessity[6] from this single supposition that God wished to create Adam'.[7] To this I have two replies to make, the first being that my supposition is not simply that God

[1] Cf. pp. 25–6
[2] Cf. p. 13.
[3] Cf. p. 26; 'de necessitate ex hypothesi'.
[4] 'necessitate fatali'.
[5] ibid.
[6] 'necessitate ex hypothesi'.
[7] Cf. p. 26.

wished to create an Adam of whom the concept is vague and incomplete, but that God wished to create a particular Adam sufficiently determinate for an individual. And this complete individual concept in my opinion embraces relationships with the whole succession of things, which must appear all the more reasonable as M. Arnauld grants me here the connexion that exists between God's decisions, namely that God, in deciding to create a particular Adam, takes into consideration all the decisions that he is making concerning the whole succession of the universe, in almost the same way as a wise person who takes a decision concern-
G, p. 38 ing a part of his plan has all of it in mind and / will make a decision all the better if he can decide about all the parts at the same time.

The other reply is that the consequence through which the events follow from the hypothesis is indeed always certain but that it is not always metaphysically necessary,[1] as is the one in M. Arnauld's example (that God in deciding to create me could not fail to create a nature capable of thought), but that often the consequence is only physical and implies some free decrees of God, as do the consequences dependent on the laws of movement or on the moral principle that every mind will incline to what seems to it to be the greatest good. It is true that when the assumption of the decrees effecting the consequence is added to the first assumption of God's decision to create Adam, which was the antecedent, to make one single antecedent out of all these assumptions or decisions, it is true, I repeat, that then the consequence is accomplished.

As I had already in a sense touched upon these two replies in my letter to the Landgrave, M. Arnauld makes rejoinders here that must be considered. He confesses in good faith that he has understood my opinion, as if all the events happening to an individual were inferred, in my view, from his individual concept, in the same way and with the same necessity by which one infers the properties of the sphere from its

[1] 'nécessaire necessitate metaphysica'.

specific concept or definition, and as if I had considered the concept of the individual in himself without paying attention to the way in which he is in God's understanding or will. 'For', he says, 'it seems to me that one does not customarily consider the specific concept of a sphere in relation to the way it is represented in the divine understanding, but in relation to what it is in itself, and I thought that this was the case for the individual concept of each person'; but he adds 'that now that he knows that this is my idea, it is enough for him to make him fall in with it while trying to discover whether this clears up the whole difficulty', about which he is still doubtful.[1] I see that M. Arnauld has not remembered or at least has not paid heed to the opinion of the Cartesians, who maintain that God establishes by his will the eternal truths, like those concerning the properties of the sphere; but as I do not share their opinion any more than M. Arnauld, I shall simply say why I think it necessary to philosophize / one way about the concept of an individual G, p. 39
substance and another way about the specific concept of the sphere. It is because the concept of a species contains only eternal or necessary truths, whereas the concept of an individual contains, regarded as possible,[2] what in fact exists or what is related to the existence of things and to time, and consequently it depends on some free decrees of God which are considered as possible: for truths of fact or of existence depend on God's decrees. So the concept of the sphere in general is incomplete or abstract, that is to say that one considers only the essence of the sphere in general or in theory without regard to the particular circumstances, and consequently it does not in the least contain what is required for the existence of one individual sphere, but the concept of the sphere that Archimedes had placed on his tomb is complete and must contain all that pertains to the subject of that form. That is why in individual or practical

[1] Cf. p. 27.
[2] 'sub ratione possibilitatis'.

considerations, which are related to individuals,[1] in addition to the form of the sphere one is concerned with the substance of which it is made, the place, the time and the other circumstances which by a continual sequence would finally embrace the whole succession of the universe, if one could pursue everything contained in these concepts. For the concept of this particle of matter from which this sphere is made embraces all the changes it has undergone and will one day undergo. And in my view every individual substance always contains marks of everything that has ever happened to it and indications of what will ever happen to it. But what I have just said is enough to explain my method of approach.

Now, M. Arnauld declares that in taking the individual concept of a person in relation to the knowledge that God had of him when he decided to create him, what I say of this concept is very certain; and he likewise admits that the act of will to create Adam was not separate from the one he had regarding what has happened to him and his posterity.[2] But he now asks whether the connexion between Adam and what has occurred to his posterity[3] is dependent upon or independent of the free decrees of God, 'that is to say', as he puts it, 'if it is only as a consequence of the free decrees whereby God ordered everything that would happen to Adam and his posterity, that God knew what would happen to them; or if there exists, independently of these decrees, between Adam and the above-mentioned occurrences, an intrinsic and necessary connexion'.[4] He does not doubt that
G, p. 40 I choose the second / alternative, and indeed I cannot choose the former in the way that has just been explained; but it seems to me that some middle way exists. He proves however that I must choose the latter, because I consider the individual concept of Adam as possible, maintaining

[1] 'quae versantur circa singularia'.
[2] Cf. p. 27.
[3] 'les événements de sa postérité'.
[4] Cf. pp. 27–8.

that amongst an infinite number of possible concepts God chose that of a particular Adam; now, possible concepts in themselves do not depend on the free decrees of God.

But here is where I must express my thoughts a little better; so I say that the connexion between Adam and human occurrences is not independent of all the free decrees of God; but also it does not depend upon them completely, in such a way as if every occurrence happened or was foreseen only by virtue of a primary particular decree made respecting it. I therefore believe that there are few free primary decrees capable of being called laws of the universe and regulating the sequences of things, which, when linked to the free decree to create Adam, bring about the consequence, as very similarly there are few hypotheses to explain phenomena; I shall explain this more clearly still later on. And as for the objection that possible things are independent of God's decrees, I grant it where actual decrees are concerned (although the Cartesians do not agree), but I maintain that possible individual concepts contain some possible free decrees. For instance, if this world were only possible, the individual concept of a body in this world, containing certain movements as possibilities, would also contain our laws of motion (which are free decrees of God) but also as mere possibilities. For as there exists an infinite number of possible worlds, there exists also an infinite number of laws, some peculiar to one world, some to another, and each possible individual of any one world contains in the concept of him the laws of his world.

The same thing can be said of miracles or extraordinary operations of God, which nevertheless belong to the general order, are in conformity with God's main plans, and consequently are contained in the concept of this universe, the latter being a result of those plans; as the idea of a building results from the aims or plans of the man who takes it in hand, and the idea or concept of this world is a result of those plans of God considered as possibilities. For everything must be explained by its cause, and the cause of the

G, p. 41 universe is God's aims. Now each / individual substance in my opinion is an expression of the whole universe in accordance with a certain viewpoint, and consequently it is also an expression of the miracles mentioned above. All this must be understood of the general order, of God's plans, of the sequence of events in this universe,[1] of individual substance, and of miracles, whether they are considered in their actual state or regarded as possible.[2] For another possible world will also possess all this in its own way, although the plans for ours have been preferred.

From what I have just said of God's plans and of the primary laws, one can believe also that this universe has a certain principal or primary concept of which particular events are merely consequences, except however for freedom and contingency, to which certainty does no harm since the certainty of events is based partly on free acts. Now, every individual substance of this universe expresses in its concept the universe into which it enters. And not only the assumption that God decided to create this particular Adam, but also that of any other individual substance whatever contains decisions made for everything else, because it is in the nature of an individual substance to have such a complete concept, whence can be inferred everything that one can attribute to it, and even the whole universe because of the connexions between things. Nonetheless, in order to proceed with accuracy, one must say that it is not so much because God decided to create this Adam that he decided everything else, but that the decisions which he takes regarding both Adam and other particular things are a consequence of the decision he takes regarding the whole universe and the main aims which determine the primary concept of it and establish that general and inviolable order in it to which everything conforms, without there being the need to make exception of miracles, which are undoubtedly consonant with the main aims of God, although the parti-

[1] 'de la suite de cet univers'.
[2] 'sub ratione possibilitatis'.

cular maxims which are called natural laws are not always adhered to therein.

I had said that the assumption from which all human events can be deduced is not simply one of creating an indeterminate Adam, but of creating a particular Adam determined to all these circumstances and chosen from amongst an infinite number of possible Adams. That gave M. Arnauld the opportunity not unreasonably to object that it is as impossible to conceive of many Adams, taking Adam as an individual nature, as to conceive of many varieties of myself.[1] I agree, but then in / speaking of many G, p. 42
Adams I was not taking Adam as one determinate individual. I must explain myself. This is how I understood it. When one considers in Adam a part of his predicates, for instance that he is the first man, placed in a garden of pleasure, from whose rib God draws forth a woman, and similar things conceived of in a general way[2] (that is to say without mentioning Eve, Eden and other circumstances which complete his individuality), and that the person to whom these predicates are attributed is called Adam, all this is not enough to determine the individual, for there can be an infinite number of Adams, that is to say of possible people differing one from another, who fit that description. And far from disagreeing with M. Arnauld's objections to this plurality of one and the same individual, I had myself used them to make it better understood that the nature of an individual must be complete and determinate. I am even very much persuaded of what St. Thomas had already taught regarding intelligences, and which I consider to be generally true, namely that it is not possible for there to be two individuals entirely alike, or differing in number only.[3] So one must not conceive of an indeterminate Adam, that is to say a person possessing certain attributes of Adam, when it is a question of determining whether all human events

[1] Cf. p. 29.
[2] 'sub ratione generalitatis'.
[3] 'solo numero'.

follow from the assumption of his existence; but one must attribute to him a concept so complete that everything that can be attributed to him can be deduced from it; now, there is no reason for doubting that God can form such a concept of him, or rather that he may find it already formed in the domain of possible things, that is to say in his understanding.

It also follows that he would not have been our Adam, but another, if he had experienced other events, for nothing prevents us from saying that he would be another. He is therefore another. It seems clear to us that this square of marble brought from Genoa would have been exactly the same even if it had been left there, because our senses permit us to make only superficial judgements, but fundamentally, because of the connexions between things the whole universe with all its[1] parts would be quite different and would have been another universe from the beginning if the least thing were to happen other than it does. This does not mean that events are necessary, but the fact is that they are certain from the time God has made his choice of this possible universe, the concept of which embraces this sequence of things. I hope that what I am going to say will be able to
G, p. 43 win even M. Arnauld's agreement. Suppose / a straight line ABC representing a certain length of time. And suppose a certain individual substance, for instance me, existing or surviving during that length of time. Let us then first of all take me as existing during the time AB, and also as existing during the time BC. Since then one supposes that it is the same individual substance continuing to exist, or that it is I who exist in the time AB and am then in Paris, and that it is also I who exist in the time BC and am then in Germany, there must of necessity be a reason for the true statement that we continue to exist, that is to say that I who was in Paris am now in Germany. For if there is no reason, one would be as justified in saying that it is another person. To be sure, my subjective experience has convinced me *a posteriori* of this identity, but there must also be one *a priori*.

[1] 'nos' (Gerhardt): corrected according to Le Roy (p. 109).

Now, it is impossible to find another identity, except that my attributes of the preceding time and state as well as those of the following time and state are predicates of one and the same subject, they are present in the same subject.[1] Now, what does it mean to say that the predicate is in the subject, except that the concept of the predicate is in some sense contained in the concept of the subject? And seeing that since the beginning of my existence it could truly be said of me that this or that would happen to me, one must admit that these predicates were laws contained in the subject or in the complete concept of me which makes what is called myself, which is the basis of the connexion between all my different states and of which God had perfect knowledge from all eternity. After that I think that all doubts must vanish, for when I say that the individual concept of Adam contains everything that will ever happen to him, I mean nothing other than what all philosophers mean when they say that the predicate is present in the subject of a true proposition.[2] It is true that the consequences of a doctrine so evident are paradoxes, but the fault lies with philosophers, who do not take far enough the clearest concepts.

Now, I believe that M. Arnauld, being as penetrating and just as he is, will no longer find my proposition so strange, even if he cannot entirely agree with it, though I flatter myself almost that I have his approval. I agree with what he also judiciously says about the circumspection that must be used in consulting divine knowledge,[3] in order to know what we must think of the concepts of things. But, rightly considered, what I have just said must hold, / even if one G, p. 44
were to speak of God no more than is necessary. For even if one did not say that God, considering the Adam that he decides to create, sees in him all the events that occur to him, it is enough that one can always prove that there must exist a complete concept of this Adam which contains them.

[1] 'insunt eidem subjecto'.
[2] 'praedicatum inesse subjecto verae propositionis'.
[3] 'science'.

For all the predicates of Adam depend or do not depend upon other predicates of the same Adam. Setting aside, therefore, those which do depend upon others, one has only to consider together all the basic predicates in order to form the complete concept of Adam adequate to deduce from it everything that is ever to happen to him, as much as is necessary to be able to account for it. It is evident that God is able to invent and even in fact forms such a concept sufficient to account for all the phenomena concerning Adam; but it is no less evident that the concept is possible in itself. It is true that one must not plunge unnecessarily into the pursuit of the divine knowledge[1] and will, because of the great difficulties therein; nevertheless, one can explain what we have inferred from it for our problem, without entering upon those difficulties mentioned by M. Arnauld, such as that of understanding how God's simplicity is compatible with the distinctions we must note in it. It is also very difficult to give a perfect explanation of how God has a knowledge[2] which he might not have had, that is the knowledge[3] of vision;[4] for if future contingent acts did not exist, God would have no vision of them. It is true that he would nevertheless possess simple knowledge[5] of it, and this became vision when his will was added to it; so that this difficulty is perhaps reduced to the problem raised by his will, namely of how God is free to will. This certainly passes our understanding, but it is not as necessary to understand it in order to resolve our problem.

As for the way we conceive of God acting in choosing the best from among many possibilities, M. Arnauld is right to find this unclear. He seems nevertheless to recognize that we are inclined to conceive of there being an infinite number of possible first men, each with a great succession of persons and events, and that God chooses the one who pleases him, along with his succession; that is therefore not as strange as it seemed to him at first. To be sure, M. Arnauld indicates

[1] 'science'. [2] ibid. [3] ibid.
[4] Cf. p. 7, n. 1. [5] 'science'.

that he is very much inclined to believe that these purely possible substances are merely figments of the imagination.[1] I do not wish to dispute this, / but I hope that nonetheless G, p. 45
he will grant me what I require. I agree that there exists no other reality in purely possible things than the one they possess in the divine understanding, and one sees thereby that M. Arnauld will be himself obliged to have recourse to divine knowledge[2] to explain them, whereas he seemed to want to maintain earlier[3] that one must look for them in themselves. Even if I should also concede the point on which M. Arnauld is convinced and which I do not deny, that we conceive of possibilities only through the ideas which in fact exist in the things which God has created, that would do me no harm. For when I talk of possibilities I am satisfied if one can form true propositions from them. For instance, if there were no perfect square in the world, we should nevertheless see that no contradiction is implied. And if one wanted totally to reject purely possible things, one would be destroying contingency: for if nothing is possible but what God has in fact created, what God has created would be necessary in the event of his having decided to create something.

Finally, I agree that in order to judge of the concept of an individual substance, it is a good thing to consider the concept I have of myself, just as it is necessary to consider the specific concept of the sphere in order to judge of its properties. However, the difference is great, for the concept of myself and of every other individual substance is infinitely more extensive and difficult of comprehension than a specific concept like that of the sphere which is merely incomplete. It is not enough for me to feel myself to be a thinking substance, one would have to form a distinct idea of what distinguishes me from all other minds; but I have only a confused experience of it. This has the consequence that although it is easy to judge that the number of feet in the diameter is not contained in the concept of the sphere in

[1] Cf. p. 31. [2] 'science'. [3] Cf. p. 27.

general, it is not so easy to judge whether the journey I plan to take is contained in the concept of me, otherwise it would be as easy for us to be prophets as geometers. I am not sure whether I shall take the journey, but I am sure that whether I do or not I shall always be myself. We are concerned here with a prejudice which is not to be confused with a distinct concept or item of knowledge. These things appear to us to be undetermined only because the advance signs or indications of them in our substance are not recognisable to us. More or less as those who are guided only by their senses will brand as a fool the man who tells them that the smallest movement is communicated as far as matter
G, p. 46 extends, because / experience alone cannot demonstrate it; but when one considers the nature of motion and matter, one is convinced of it. It is the same here: when one pays heed only to the confused experience which one has of one's individual concept in particular, one is far from perceiving this connected chain of events; but when one considers the general and distinct concepts that are relevant to it, one finds that chain. Indeed, when I refer to the concept which I have of every true proposition, I find that every necessary or contingent predicate, past, present or future, is included in the concept of the subject, and I ask no more.

I even believe that this will open up a conciliatory path for us, for I imagine that M. Arnauld has been reluctant to concede this proposition only because he has considered that the connexion which I support is intrinsic and at the same time necessary, whereas I consider it intrinsic but not at all necessary; for I have by now sufficiently explained that it is based on free acts and decrees. I mean no other link between subject and predicate than the one existing in the most contingent truths, namely that there is always something to be conceived in the subject which serves to explain why this predicate or event pertains to it, or why this has happened rather than not. But these reasons for contingent truths incline without necessitating.[1] It is therefore true that I

[1] Cf. art. 13 (p. 5).

would be able not to take this journey, but it is certain that I shall. This predicate or event is not indubitably linked with my other predicates conceived of incompletely or in a general way;[1] but it is indubitably linked with the complete individual concept of me, since I suppose that this concept is purposely created in such a way that one can deduce from it all that is happening to me; which concept is certainly found objectively,[2] and it is properly the concept of myself in various states, since it is this concept alone which can embrace them all.

I have so much respect for M. Arnauld and such a high opinion of his judgement, that I easily mistrust my own opinions or at least the way I express them, as soon as I see that he finds fault with them. This is why I have followed exactly the difficulties he has raised, and having tried to answer them in good faith, I feel that I am not too far removed from his[3] opinions.

The proposition in question is of very great importance and merits a clear demonstration, for it follows that every soul is like a world / apart, independent of everything G, p. 47
except God; that it is not only immortal and, so to speak, incapable of being acted upon,[4] but that it retains in its substance indications of everything that happens to it. From it also follows the nature of the commerce between substances, and particularly that of the union between soul and body. This commerce does not conform to the ordinary hypothesis of the physical influence of the one upon the other, for every present state of a substance occurs to it spontaneously and is only a consequence of its preceding state. It does not conform either to the hypothesis of occasional causes, as though God were ordinarily to intervene in any other way than by maintaining each substance in its course of action, and as though God on the occasion of

[1] 'sub ratione generalitatis'.
[2] 'a parte rei'.
[3] 'ces' (Gerhardt): corrected according to Le Roy (p. 113).
[4] 'impassible'.

occurrences in the body aroused thoughts in the soul, which might change the course that the soul would have taken of itself without that; but it conforms to the hypothesis of concomitance, which to me appears certain. That is to say, each substance is an expression of the entire sequence of events in the universe according to the view or relationship peculiar to it, whence it happens that they exist in perfect harmony with one another; and when one says that one substance acts upon the other, the distinct expression of the passive one decreases, and increases in the active one in conformity with the succession of thoughts embraced by its concept. For although every substance is an expression of everything, one is correct in attributing to it in practice only the most distinctive expressions according to its relationship.

Finally, I believe that after this the propositions contained in the summary sent to M. Arnauld will appear to be not only more intelligible, but perhaps even more solid and important than one could have thought at first.

X

Leibniz to Arnauld

Hanover, 4/14 July 1686

As I have great regard for your judgement, I was delighted to see that you have moderated your criticism after seeing my explanation / of that proposition which I consider im- G, p. 48
portant and which had appeared strange to you: 'that the individual concept of each person contains once for all everything that will ever happen to him'.[1] You had at first inferred from it the consequence that from the single supposition that God should have decided to create Adam, all other human events occurring to Adam and his posterity would have resulted through a fatal necessity, without God any longer having the liberty to dispose of them, any more than he is able not to create a creature capable of thought, after deciding to create me.[2]

To this I had replied[3] that, God's plans respecting the whole of this universe being interconnected in accordance with his sovereign wisdom, he took no decision about Adam without taking one about everything in any way connected with him. It is not, then, because of the decision taken about Adam, but because of the decision taken at the same time about everything else (with which the one taken about Adam contains a perfect relationship), that God has made up his mind about all human events. In this it seemed to me that there was no fatal necessity nor anything contrary to God's freedom, no more than in the hypothetical necessity which meets with general agreement, that exists even for God, to carry out what he has decided.

You agree, Sir, in your reply, about this connexion between divine decisions which I had advanced,[4] and you

[1] Cf. p. 5. [2] Cf. p. 9. [3] Cf. p. 14.
[4] 'which I had advanced' was later struck out by Leibniz in his copy.

are even sincere enough to admit that you had at first taken my proposition quite differently, 'because for example one does not customarily consider' (these are your words) 'the specific concept of a sphere in relation to the way it is represented in the divine understanding, but in relation to what it is in itself'; and that you had believed (which I admit was not entirely without grounds)[1] 'that this was also the case for the individual concept of each person'.[2] As for
G, p. 49 me, I had believed / that full and comprehensive concepts are represented in the divine understanding, as they are in themselves.[3] But now that you know what my view is, it is enough for you to fall in with it and investigate to see if it clears up the difficulty. It seems then, Sir, that you recognize that my opinion, explained in this way, concerning full and comprehensive concepts as they exist in the divine understanding, is not only innocent, but even unquestionable; for here are your words: 'I agree that the knowledge God had of Adam when he decided to create him contained the knowledge of everything which has happened to him, and of everything which has happened and is to happen to his posterity, and so taking the individual concept of Adam in this sense, what you say about it is very certain.'[4] We shall shortly see where lies the difficulty which you still find in it. However, I shall say a word about the reason for the difference there is in this between the concepts of species and those of individual substances, in relation to the divine will rather than to simple understanding.[5] It is that the most abstract[6] specific concepts contain only necessary or eternal

[1] The parenthetical clause is suppressed in the copy sent to Arnauld.

[2] Cf. p. 27.

[3] This sentence was later struck out by Leibniz in his copy. The following observation (in Latin) is found in the margin: 'A full concept contains all the predicates of the thing, e.g., heat; a complete concept all the predicates of the subject, e.g. a hot fire. They coincide in individual substances.' The reading 'a hot fire' is taken from Lewis, p. 35 n. Gerhardt reads 'hujus calidi'—'this hot thing'.

[4] Cf. p. 27.

[5] 'in relation . . . understanding' was later struck out by Leibniz in his copy.

[6] 'the most abstract' was later struck out by Leibniz in his copy.

truths, which do not depend upon God's decrees (whatever the Cartesians may say of it, and you yourself do not seem to have heeded them in this matter); but the concepts of individual substances, which are complete and capable of wholly characterizing their subject, and which consequently embrace truths of contingency or of fact, and the individual circumstances of the time, the place, etc., must also embrace in their concept, considered as possible, the free decrees of God, also considered as possible, because these free decrees are the principal sources of existences or facts; whereas essences exist in the divine understanding before one considers will.

That will help us to understand better everything else and to clear up the difficulties which seem still to remain in my explanation; for / you go on, Sir, as follows: 'But, it seems G, p. 50
to me, after that one must still ask, and this is the source of my difficulty, if the connexion between these objects (namely, Adam and human events) exists as such of itself, independent of all the free decrees of God, or if it is dependent upon them; that is to say, if it is only as a consequence of the free decrees whereby God ordered everything that would happen to Adam and his posterity, that God knew everything that would happen to them; or if there exists, independently of these decrees, an intrinsic and necessary connexion between Adam on the one hand and what has happened and will happen to him and his posterity on the other.'[1] It seems to you that I shall choose the latter alternative, because I said 'that God found among possible things an Adam accompanied by particular individual circumstances and that he possesses amongst other predicates also that of having in the course of time a particular posterity'.[2] Now, you suppose that I shall concede that possible things are possible prior to all the free decrees of God. Supposing, then, this explanation of my opinion according to the latter alternative, you are of the view, Sir, that it has insurmountable difficulties; for there is, as you very

[1] Cf. pp. 27–8. [2] Cf. pp. 14, 28.

rightly say, 'an infinite number of human events which have occurred through very particular orders of God; like, among others, the Judeo-Christian religion and above all the Incarnation of the Divine Word. And I do not know how it could be said that all this' (which has occurred through very free decrees of God) 'was contained in the individual concept of the possible Adam: seeing that what is considered as possible must have all that one conceives of as belonging to it under this concept, independently of the divine decrees'.[1]

I have wanted to give an exact account of your difficulty, Sir, and I hope to resolve it entirely as even you would desire, in the following manner. For it must indeed be resolved, since one cannot deny that there truly exists a particular full concept of Adam accompanied by all his predicates and conceived of as possible, which God knows before deciding to create him, as you have just conceded. I believe, then, that the dilemma of the double explanation which you propose allows of some middle way, and that the connexion which I conceive of between Adam and human
G, p. 51 events is / intrinsic, but that it is not necessary, independently of the free decrees of God, because God's free decrees, considered as possible, enter into the concept of the possible Adam, while it is these same decrees, once they became actual, which were the cause of the actual Adam. I agree with you against the Cartesians that possible things are possible prior to all the actual decrees of God, but not without sometimes supposing the same decrees considered as possible. For the possibilities of individuals or of contingent truths contain in their concept the possibility of their causes, that is, of the free decrees of God in which they differ from the possibilities of species or eternal truths, which depend upon God's understanding alone without presupposing his will, as I have already explained above.[2]

That might suffice, but in order to make myself better understood, I shall add that I conceive that there was an

[1] Cf. p. 29.

[2] 'above' was later struck out by Leibniz in his copy.

infinite number of possible ways of creating the world according to the different plans that God could form, and that each possible world depends upon certain of God's principal plans or ends, which are peculiar to him, that is to say upon certain primary free decrees (conceived of as possible[1]) or laws of the general order of that possible universe to which they are suited and whose concept they determine, as well as the concepts of all the individual substances which must enter into this same universe: since everything, even miracles, belongs to order, although miracles are contrary to some subordinate maxims or laws of nature. Thus all human events could not fail to occur as in fact they did occur, once the choice of Adam is assumed; but not so much because of the individual concept of Adam, although this concept contains them, but because of God's plans, which also enter into this individual concept of Adam, and which determine that of this entire universe, and consequently both that of Adam and those of all the other individual substances of this universe, each individual substance being an expression of the whole universe, of which it is a part in accordance with a certain relationship, through the connexion that exists between all things, because of the interrelationships between God's decisions or plans.

I see that you make yet another objection, Sir, which is not taken from the consequences that are apparently contrary to liberty, like the objection which I have just resolved, but from the / thing itself and from the notion that G, p. 52
we have of an individual substance. For since I have the notion of an individual substance, that is to say of myself, it is there that you think one must look for what must be said about an individual concept, and not in the way in which God conceives of individuals. And as I have only to consult the specific concept of a sphere in order to judge that the number of feet in the diameter is not determined by this concept, likewise (you say) I clearly find in the individual

[1] 'sub ratione possibilitatis'.

concept I have of myself, that I shall be myself, whether I do or do not take the journey which I have planned.

In order to make a clear reply, I agree that the connexion between events, although certain, is not necessary, and that I am free to take this journey or not, for although it is contained in my concept that I shall take it, it is also contained therein that I shall take it freely. And there is nothing in me of all that can be conceived in general terms, i.e. in terms of essence, or of a specific or incomplete concept[1] from which one can infer that I shall necessarily take it, whereas from the fact that I am a man one can conclude that I am capable of thought; and consequently, if I do not take this journey, that will not do violence to any eternal or necessary truth. However, since it is certain that I shall take it, there must indeed be some connexion between me, who am the subject, and the accomplishment of the journey, which is the predicate, for in a true proposition the concept of the predicate is always present in the subject.[2] A falsity would therefore exist, if I did not take it, which would destroy the individual or complete concept of me, or what God conceives or conceived of me even before deciding to create me; for this concept embraces as possible[3] existences or truths of fact or God's decrees, upon which facts depend.

I also agree that, in order to judge of the concept of an individual substance, it is a good thing to consider the concept I have of myself, just as it is necessary to consider the specific concept of the sphere in order to judge of its properties; although there is a great deal of difference. For the concept of myself in particular and of every other individual substance is infinitely more extensive and more difficult of comprehension than a specific concept like that of the sphere which is merely incomplete and does not contain all the circumstances necessary in practice for arriving at one

[1] 'sub ratione generalitatis seu essentiae seu notionis specificae sive incompletae'.

[2] 'semper enim notio praedicati inest subjecto in propositione vera'.

[3] 'sub ratione possibilitatis'.

particular sphere. It is not enough for understanding the nature of myself, that I feel myself to be a / thinking sub- G, p. 53
stance, one would have to form a distinct idea of what distinguishes me from all other possible minds; but of that I have only a confused experience. That has the consequence that, although it is easy to judge that the number of feet in the diameter is not contained in the concept of the sphere in general, it is not so easy to judge with certainty (although one can judge it with a fair degree of probability) whether the journey which I plan to take is contained in the concept of me, otherwise it would be as easy to be a prophet as to be a geometer. However, just as experience cannot acquaint me with an infinite number of imperceptible things in bodies, of whose existence the general consideration of the nature of the body and of motion can convince me; likewise, although experience does not make me feel all that is contained in the concept of me, I can know in general that everything that pertains to me is included in it by the general consideration of the individual concept.

Certainly, since God can form and in fact does form this complete concept which contains what is sufficient to account for all the phenomena which occur to me, this concept is possible, and it is the genuine complete concept of what I call *myself*, by virtue of which all my predicates pertain to me as their subject. One could therefore prove it in like manner without mentioning God except as much as is necessary to indicate my dependence; but one expresses this truth more strongly in deducing the concept in question from divine knowledge[1] as being its source. I acknowledge that there are many things in divine knowledge[2] that we cannot understand, but it seems to me that one need not delve into them in order to resolve our problem. Moreover, if in the life of some person and even in this entire universe something were to proceed in a different way from what it does, nothing would prevent us saying that it would be another

[1] 'la connaissance divine'.
[2] 'la science divine'.

person or another possible universe that God would have chosen. It would thus truly be another individual; there must also be an *a priori* reason (independent of my experience) which makes one say truly that it is I who was in Paris and that it is still I, and not another, who am now in Germany, and consequently the concept of myself must link or include the different states. Otherwise, one might say that it is not the same individual, although it appears to be. And indeed certain philosophers who were not well enough acquainted with the nature of substance and of individual[1] entities or entities *per se* have thought that nothing remained truly the same. And it is because of that, among other
G, p. 54 things, that I am of the opinion that / bodies would not be substances if they were composed only of extension.

I believe, Sir, I have now cleared up the difficulties affecting the main proposition. But since you also make some other remarks of consequence about some incidental expressions which I had used, I shall try to express my thoughts about them again. I had said that the assumption from which all human events can be deduced is not that of creating an indeterminate Adam, but that of creating a particular Adam determined to all these circumstances, and chosen from among an infinite number of possible Adams. You make two significant remarks about this, one against the plurality of Adams, and the other against the reality of purely possible substances. As for the first point, you say very rightly that it is as impossible to conceive of many possible Adams, considering Adam as an individual nature, as to conceive of many varieties of myself.[2] I agree, but also, in speaking of many Adams, I was not considering Adam as a determinate individual, but as a certain person conceived of in general terms[3] in circumstances which seem to us to determine Adam

[1] 'indivisible' in the copy sent to Arnauld (Le Roy, p. 119). This reading seems preferable, as Leibniz goes on to speak of his view that bodies would not be substances if they were composed only of extension, a view which he derives from the thesis that a substance is indivisible.

[2] Cf. p. 29. [3] 'sub ratione generalitatis'.

as an individual, but which in truth do not determine him sufficiently, as when one understands by Adam the first man that God places in a garden of pleasure which he leaves because of sin, and from whose rib God draws forth a woman. But all that is not sufficiently determining, and in this way there would be many disjunctively possible Adams or many individuals whom all that would fit. That is true, whatever finite number of predicates incapable of determining all the rest one may take, but what determines a certain Adam must absolutely contain all his predicates, and it is this complete concept that determines generality in such a way that the individual is reached.[1] Moreover, I am so far removed from the plurality of one and the same individual that I am even very much persuaded of what St. Thomas had already taught regarding intelligences and which I consider to be generally true, namely, that it is not possible for there to be two individuals entirely alike, or differing in number only.[2]

As for the reality of purely possible substances, 'that is to say the ones that God will never create', you say, Sir, that you are 'very much inclined to think that they are figments of the imagination',[3] a view I do not oppose, if you understand by it, as I suppose you do, that they have no other reality than that which they have in the divine understanding and in the / active power of God. However, you can G, p. 55
see from that, Sir, that one is obliged to have recourse to divine knowledge[4] and power in order to explain them properly. I also find what you say afterwards to be very solid: 'that one never conceives of any purely possible substance except according to the notion of one' (or by the notions included in one) 'of those which God has created'.[5] You also say: 'We imagine that before he created the world, God envisaged an infinite number of possible things, amongst which he chose some and rejected others: many

[1] 'rationem generalitatis ad individuum'.
[2] 'solo numero'.
[3] Cf. p. 31. [4] 'science'. [5] Cf. p. 32.

possible Adams (first men), each with a great succession of people with whom he has an intrinsic connexion; and we suppose that the connexion of all these other things with one of these possible Adams (first men) is quite like the connexion which the created Adam had with the whole of his posterity; which makes us think that this is the one amongst all the possible Adams that God chose and that he did not want any of the others.'[1] In this you seem to acknowledge, Sir, that these thoughts, which I confess to be mine (provided that one understands the plurality of Adams and their possibility according to the explanation which I have given, and that one considers all this in accordance with the way we conceive of some order in the thoughts or operations that we attribute to God), enter the mind quite naturally, when one thinks a little about this subject, and even cannot be avoided, and perhaps displeased you only because you assumed that one could not reconcile the intrinsic connexion that exists with God's free decrees. All actuality can be conceived of as possible, and if the actual Adam has in the course of time a particular posterity, one cannot deny this same predicate to this Adam conceived of as possible, all the more so because you concede that God envisages all these predicates in him when he resolves to create him. Hence they belong to him, and I do not see that your remarks about the reality of possible things contradict it. In order to call something possible, it is enough for me[2] that one can form a concept of it even though it should only exist in the divine understanding, which is, so to speak, the domain of possible realities. Thus when I talk of possibilities, I am satisfied if one can form true propositions from them, as one can be of the opinion, for example, that a perfect square does not imply a contradiction, even though there should be no perfect square in the world. And if one
G, p. 56 wanted / totally to reject purely possible things, one would be destroying contingency and liberty; for if nothing were

[1] Cf. pp. 31.

[2] 'ce n'est assez' (Gerhardt): corrected according to Le Roy (p. 121).

possible except what God in fact creates, what God creates would be necessary, and God, wanting to create something, could create nothing but that, without having freedom of choice.

All that makes me hope (after the explanations that I have given and for which I have always adduced reasons, in order to make you believe that these are not subterfuges invented in order to elude your objections) that in the end your thoughts will not be as far removed from mine as they at first appeared to be. You agree, Sir, with the interconnexion of God's decisions, you recognize that my main proposition is unquestionable, in the sense that I had given to it in my reply; you doubted only if I was making the connexion independent of God's free decrees, and that had very rightly distressed you; but I have demonstrated that the connexion depends on those decrees, in my opinion, and that it is not necessary, although it is intrinsic. You have insisted upon the objection there would be to saying that, if I do not take the journey that I am to take, I shall not be me, and I have explained how one can say it or not. Finally, I have given a decisive argument which in my view has the force of a demonstration; that always, in every true affirmative proposition, necessary or contingent, universal or particular, the concept of the predicate is in a sense included in that of the subject; the predicate is present in the subject;[1] or else I do not know what truth is.

Now, I do not ask for more of a connexion here than that which exists objectively[2] between the terms of a true proposition, and it is only in this sense that I say that the concept of the individual substance contains all its events and all its denominations, even those that one commonly calls extrinsic (that is to say, that belong to it only by virtue of the general connexion of things and of the fact that it is an expression of the entire universe after its own manner), since *there must always be some basis for the connexion between the terms*

[1] 'praedicatum inest subjecto'.
[2] 'a parte rei'.

of a proposition, and it is to be found in their concepts. That is my great principle with which I believe all philosophers must agree, and of which one of the corollaries is the common axiom that there is a reason for everything that happens, and that one can always explain why a thing has worked out this way rather than that,[1] although this reason often inclines without necessitating, since a state of perfect in-
G, p. 57 difference is a chimerical or / incomplete assumption. One sees that from the above-mentioned principle I draw surprising consequences, but it is only because one is not accustomed to pursue far enough the clearest knowledge.

Besides, the proposition which has occasioned all this discussion is very important and merits a firm proof, for it follows that every individual substance is an expression of the entire universe after its own manner and according to a certain relationship, or, so to speak, according to the point of view from which it looks at the universe; and that its succeeding state is a sequel (although free or contingent) of its preceding state, as though only God and it existed in the world: thus each individual substance or complete entity is like a world apart, independent of everything except God. There is nothing so powerful for demonstrating not only the indestructibility of our soul, but even that it retains forever in its nature the indications of all its preceding states with a potential memory which can always be aroused, because the soul possesses consciousness or is familiar in itself with what every man calls 'my self'. This renders it susceptible of moral qualities, and of reward and punishment, even after this life. For immortality without memory would be useless. But this independence does not prevent commerce between substances; for as all created substances are a continual production of the same sovereign being in accordance with the same plans, and are an expression of the same universe or of the same phenomena, they harmonize exactly among themselves, and that causes us to say that one acts upon the

[1] 'cet axiome vulgaire que rien n'arrive sans raison, qu'on peut toujours rendre pourquoi la chose est plutôt allée ainsi qu'autrement'.

other, because one is a more distinct expression than the other of the cause of or reason for the changes, more or less as we attribute motion to the vessel rather than to the whole sea, and rightly so, although speaking abstractly one might uphold another hypothesis of motion, since motion in itself, disregarding the cause, is always relative. This is how, in my opinion, one must understand the commerce between created substances, and not from a real physical influence or dependence, of which one can never have a distinct concept. That is why, when it is a question of the union of soul and body and of the active or passive relationship of a mind with respect to another creature, many have been obliged to agree that their direct commerce is inconceivable. However, the hypothesis of occasional causes does not, it seems to me, satisfy a philosopher. For it introduces a sort of continual miracle, as though God were constantly changing the laws of / bodies, on the occasion of the thoughts of minds, or G, p. 58
changing the regular course of the thoughts of the soul by arousing in it other thoughts, on the occasion of the movements of bodies; and in general as though God were ordinarily to intervene in any other way than by maintaining each substance in its course of action and in the laws established for it. There is then only *the hypothesis of the concomitance or harmony between substances* which explains everything in a conceivable manner and one worthy of God, and which even is conclusive and inevitable, in my opinion, according to the proposition that we have just demonstrated. It seems to me also that it agrees much more with the liberty of reasonable creatures than *the hypothesis of impressions or that of occasional causes*. God first created the soul in such a way that ordinarily he has no need of these changes; and what happens to the soul is born to it in its own depths, without its having to adapt itself subsequently to the body, any more than the body to the soul. Each one obeying its laws, with the one acting freely and the other without choice, they agree one with another in the same phenomena. The soul, however, is nevertheless the form of its body, because it is an expression

of the phenomena of all other bodies in accordance with the relationship to its own.

One will perhaps be more surprised to find that I deny the action of one bodily substance upon the other, though this appears to be so evident. But apart from the fact that others have already done so, one must consider that it is a play of the imagination rather than a distinct idea. If the body is a substance and not a simple phenomenon like the rainbow, nor an entity united by accident or by aggregation like a heap of stones, it cannot consist of extension, and one must necessarily conceive of something there that one calls substantial form, and which corresponds in a way to the soul. I have been convinced of it finally, as though against my will, after having been rather far removed from it in the past. Nevertheless, however much I agree with the Scholastics in this general and, so to speak, metaphysical explanation of the principles of bodies, I am as corpuscular as one can be in the explanation of particular phenomena, and it is saying nothing to allege that they have forms or qualities. One must always explain nature along mathematical and mechanical lines, provided one knows that the very principles or laws of mechanics or of force do not depend upon mathematical extension alone but upon certain metaphysical reasons.

After all that, I believe that now the propositions con-
G, p. 59 tained in / the summary which was sent to you, Sir, will appear not only more intelligible, but perhaps even more solid and important than one could have thought at first.

XI

Leibniz to Arnauld

Hanover 4/14 July 1686

I have always had so much esteem for your great merit that even when I thought myself badly treated by your disapproval, I had taken a firm decision to say nothing that might not reveal a very great respect and much deference towards you. What then will it be now that you are generous enough to make me restitution with interest or rather with liberality of a possession to which I attach an infinite value, the satisfaction of thinking that I am in favour in your mind? If I have been obliged to speak strongly in order to defend myself against the opinions which you thought I had held, it is because I highly disapprove of them and because, setting great store by your approval, I was all the more sensitive when I saw that you attributed them to me. I should like to be able to justify myself as well on the truth of my views as on their innocence; but as that is not absolutely necessary and as error in itself harms neither piety nor friendship, I do not defend myself against it as strongly. And if in the enclosed paper I reply to your kind letter, in which you pointed out very clearly and very instructively where my reply did not yet satisfy you, it is not because I intend that you should give up the time to examine my reasons anew; for it is easy to judge that you have more important matters, and / these abstract questions require leisure. But it is in G, p. 60
order that you might be at least able to do it, in case you should, because of the surprising consequences that may be inferred from these abstract concepts, wish to amuse yourself with them one day: this I should desire for my own profit[1] and for the elucidation of certain important truths

[1] 'and even for that of the public' was added later by Leibniz in his copy.

contained in my summary, your approval of which, or at least your recognition of whose innocence, would be important to me. I should therefore desire it, I repeat, if I had not learned a long time ago to prefer public utility (which has quite a different interest in the way you occupy your time) to my personal advantage, which would doubtless not be little.[1] I have already made trial of it upon your letter, and I know well enough that there is scarcely anyone in the world who can better penetrate into the heart of the matter[2] and who can cast more light on an obscure subject.

I can speak only with sorrow of the way in which you wished to do me justice, when I asked only your forgiveness; it fills me with confusion, and I say this only to let you know how much I appreciate this generosity which I have found greatly edifying, the more so because it is rare, and more than rare in a first-class mind, whose reputation usually shields it from not only the judgement of others but even from its very own. It is for me rather to beg your pardon; and as it seems that you have granted it to me in advance, I shall try with all my might to acknowledge this kindness, to be worthy of its consequences, and to preserve for myself forever the honour of your friendship, which one must consider as all the more precious because it causes you to act in accordance with opinions so Christian and so noble.

I cannot let slip this occasion without telling you, Sir, of certain thoughts which I have had since I enjoyed the honour of meeting you. Amongst other things, I have reflected much about jurisprudence, and it seems to me that one might set up something solid and useful in this respect, both in order to have an assured system of law (which we lack very much in Germany and perhaps you do too in France), and to set up a form of legal proceedings which is both brief and good. Now, it is not enough to be rigorous in
G, p. 61 terminology / or predetermined days and other conditions,

[1] The passage beginning 'contained in my summary' and ending here was later struck out by Leibniz in his copy.

[2] 'des matières'.

like those who compiled the Code Louis;[1] for to have a good case frequently ruined because of formalities is a remedy in justice like that of a surgeon frequently cutting off arms and legs. It is said that the King is ordering work to be begun again on reforming petty-fogging law, and I think that something important will be accomplished.

I have also been curious about the subject of mines, arising out of those of our country[2] which I have often visited by order of the Prince; and I think I have made some discoveries about the creation not so much of metals as of the form in which they are found and of certain bodies in which they are embedded: for instance, I am able to prove the way slate is formed.

Besides that, I have been collecting memoirs and titles concerning the history of Brunswick,[3] and recently I read a document *De finibus dioceseos Hildensemensis Henrici II imperatoris, cognomento Sancti*,[4] where, to my astonishment, I have noted these words 'pro conjugis prolisque regalis incolumitate',[5] which seems to me rather to run counter to the common opinion that has us believe that he preserved his virginity with his wife, Saint Cunegond.

Furthermore, I have often amused myself with abstract thoughts of metaphysics or of geometry.[6] I have discovered a new method of tangents which I have had printed in the Leipzig Journal.[7] You know, Sir, that M. Hudde and more

[1] The codification of the laws under Louis XIV.

[2] The reference is to the Harz silver mines, from which Leibniz had tried to remove deep-lying water by the help of wind-driven engines. See, e.g., R. W. Meyer, *Leibniz and the Seventeenth-Century Revolution* (trans. J. P. Stern) (Cambridge, 1952), pp. 108–9, and F. Klemm, *A History of Western Technology* (trans. D. W. Singer), (London, 1959), pp. 208–12.

[3] Leibniz had been appointed historian of the house of Brunswick in July 1685.

[4] 'Concerning the Boundary Limits of the Diocese of Hildesheim Established by the Emperor Henry II, Known as the Saint.'

[5] 'for the protection of his wife and royal descendants'.

[6] This remark is changed in the copy sent to Arnauld to 'abstract and metaphysical thoughts of geometry' (Le Roy, p. 127).

[7] A reference to *Nova Methodus pro maximis et minimis* (GM v. 220–6),

recently M. Slusius[1] have made quite a lot of progress on this subject. But two things were lacking: one, that when the unknown or indeterminate is involved in fractions and irrational quantities, one must extract it in order to use their methods, and this causes the calculation to rise to a height or prolixity that is thoroughly inconvenient and often unmanageable; whereas my method is not upset by fractions or irrational quantities. That is why the English have thought highly of it.[2] The other weakness in the tangential method is that it does not work for the lines which M. Descartes calls 'mechanical' and which I call 'transcendental'; whereas my method is nevertheless valid in this field, and I can calculate the tangent of the cycloid or any other given line. I can make as general a claim to provide the means for calculating these lines, and I maintain that one must admit them into geometry, whatever M. Descartes says. My reason is that there are analytical questions which are of no degree, or
G, p. 62 else whose / very degree is lacking; for instance, cutting the

published by Leibniz in the *Acta Eruditorum* for October 1684. It is believed that Leibniz sent a version of this work to Arnauld in August 1683 (cf. Introduction, p. xii); Leibniz writes as though he had forgotten this, or at least as though he expects Arnauld to have forgotten it.

[1] Jan Hudde (1628–1704) was a burgomaster of Amsterdam and an acquaintance of Spinoza; Leibniz is probably referring to his *De Maximis et Minimis* (1658). Slusius (René François de Sluse) lived from 1622 to 1685; Leibniz may be referring to a letter, of January 1673, on his method of tangents, published in vol. vii of the *Philosophical Transactions* of the Royal Society. Cf. M. Cantor, *Vorlesungen über Geschichte der Mathematik*, vol. ii (1892), pp. 730 ff. and 839 ff., and vol. iii (1898), p. 132.

[2] It could be gathered from this sentence alone that the bitter dispute between Leibniz and Newton, which was to divide British and continental mathematicians into two camps, had not yet broken out. It is not clear exactly to whom Leibniz is referring here; one possibility is John Collins, one of Newton's correspondents. Collins died in 1683, the year before the publication of the *Nova Methodus*, but he knew of Leibniz's work and praised it very highly, saying that Leibniz outshone English mathematicians like the moon among the lesser stars (L. T. More, *Isaac Newton*, 2nd ed. (New York, 1962), p. 204).

angle in incommensurate ratio from straight line to straight line. This problem is not one of planes or solids or supersolids. Yet it is a problem, and I call it transcendental for that reason. So too is this problem: solve the equation $X^x + X = 30$, where the very unknown X comes into the exponent and the very degree of the equation is lacking. It is easy to discover here that this X equals 3, for $3^3 + 3$ or $27 + 3$ make 30. But it is not always so easy to solve it, especially when the exponent is not a rational number; and one must have recourse to suitable lines or loci, which in consequence one must necessarily admit into geometry. Now, I show that the lines which Descartes wants to exclude from geometry depend on such equations, which indeed surpass all algebraic degrees but not analysis or geometry. So I call the lines admitted by M. Descartes 'algebraic' because they are of a certain degree of algebraic equation, and the others 'transcendental' which I calculate, and whose structure I show either by points or by motion; and if I may say so, I claim to advance analysis thereby 'beyond the pillars of Hercules'.[1]

And as for metaphysics, I claim to give it geometric demonstrations, assuming almost no more than two basic truths,[2] namely, in the first place the principle of contradiction, for otherwise, if two contradictory propositions can be true at the same time, all reasoning becomes futile; and in the second place, that nothing exists without reason, or that every truth has its *a priori* proof, deduced from the concept of terms, although it is not always in our power to achieve this analysis. I reduce all mechanics to a single metaphysical proposition,[3] and I have many geometrical propositions of

[1] 'ultra Herculis columnas'.

[2] Such a work is the *Specimen inventorum de admirandis naturae generalis arcanis*, G vii. 309 ff. The point of the word 'almost' in the sentence above is that Leibniz also recognizes primitive truths of fact, namely, that I think, and that various things are thought by me (e.g. *Animadversiones in partem generalem Principiorum Cartesianorum*, G iv. 357).

[3] Namely, that the total cause corresponds to the total effect, i.e. that the same force is always conserved. E.g. *Theodicy*, par. 346; DM, par. 17.

importance concerning cause and effect, likewise[1] concerning similitude which I define, thereby easily proving many truths that Euclid presents in a circuitous manner.[2]

Furthermore, I am not very much pleased with the procedure of those who always appeal to their ideas when they have exhausted their proofs, and who abuse the principle that every clear and distinct conception is good, for I maintain that one must arrive at signs of distinct knowledge, and as we often think without ideas by using symbols (instead of
G, p. 63 the ideas in question) whose / meaning we falsely assume we know, and formulate impossible figments of the imagination, I maintain that the sign of a true idea is that one can prove it to be possible, either *a priori* in conceiving its cause or reason, or *a posteriori*, when experience informs us that it is in fact to be found in nature. That is why definitions to my mind are real, when one knows that the thing defined is possible; otherwise they are only nominal, and one must not rely on them; for if by chance the thing defined implied a contradiction, one could deduce two contradictory propositions from one and the same definition. That is why you were quite right[3] to let Father Malebranche and others know that one must distinguish between true and false ideas and not give too large a role to one's imagination on the pretext of a clear and distinct conception. And as I scarcely know anyone who can make a better scrutiny than you of every kind of thought, particularly those whose consequences extend into the field of theology, since few people have the necessary insight and learning as universal as is needed for this end, and since very few have that impartiality which you have now shown for me, I pray God to give you long life and not to deprive us too soon of an aid that will not easily be found again, and I am, with warm sincerity, etc.

[1] 'item'.

[2] Cf. to Gallois, Sept. 1677 (A ii. 1, 380), *De Analysi Situs* (GM v. 178 ff, trans. Loemker, pp. 390 ff.), and Couturat, *Logique*, pp. 394 ff.

[3] The reference is to Arnauld's book, *Des vraies et des fausses idées* (1683). The controversy is also mentioned at the beginning of Leibniz's *Meditationes de Cognitione, Veritate et Ideis* (1684), G iv. 422.

XII

Leibniz to the Landgrave

14 July 1686[1] G, p. 131

I beg Your Highness to ask M. Arnauld as though of his own initiative whether he truly believes it to be so very wrong to say that every thing (whether species, individual or person) has a certain perfect concept, which includes all that can truly be stated about it, and that according to this concept God, who conceives of everything in perfection, conceives of the thing in question. And whether M. A. believes in good faith that a man who were of this opinion could not be tolerated in the Catholic Church, even though he should sincerely deny the alleged consequence of fatality. And Your Highness will be able to ask how that fits in with what M. A. had written in the past, that one would not trouble a man in the Church for these kinds of views, and whether it is not rebuffing people with needless and untimely severity to pass such easy condemnation on every kind of opinion which has nothing in common with faith.

Can one deny that every thing (whether genus, species or individual) has a complete concept, according to which God, who conceives of everything perfectly, conceives of it, that is to say a concept which contains or includes everything that can be said of the thing; and can one deny that God can form such an individual concept of Adam or Alexander, which includes all the attributes, affections, accidents and in general all the predicates of this subject? In short, if St. Thomas was able to maintain that every individual intelligence specifically differs from every other, what harm will

[1] Classified by Gerhardt, undated, at the end of the Leibniz-Arnauld Correspondence; Le Roy (p. 289, n. 1) provides the correct date from the Academy edition (A i. 4, 404).

there be in saying as much of every person and of conceiving of individuals as *infimae species*,[1] provided that species be taken not in a physical but in a metaphysical or mathematical sense? For in the physical world, when a thing engenders its like, it is said that they are of one and the same species; but in metaphysics or geometry we can say that there is a specific difference between all things which possess a difference consisting of a concept explicable in itself: as two ellipses, one of which has its major and minor axes in the ratio of two to one, and the other has them in the ratio
G, p. 132 of / three to one. But on the contrary two ellipses, which differ, not in the ratio of their axes, and thus by no distinction explicable in itself, but only by their size, i.e. relatively to one another, possess no specific difference. One must know however that complete entities cannot differ in size alone.[2]

[1] Cf. DM, par. 9.

[2] 'specie differre dicere possumus quaecunque differentiam habent in notione in se explicabili consistentem, ut duae ellipses, quarum una habet duos axes majorem et minorem in ratione dupla, altera in tripla. At vero duae ellipses, quae non ratione axium adeoque nullo discrimine in se explicabili, sed sola magnitudine seu comparatione differunt, specificam differentiam non habent. Sciendum est tamen entia completa sola magnitudine differre non posse.'

XIII

Leibniz to the Landgrave

2/12 August 1686[1] G, p. 103

I hope that Your Supreme Highness will receive the book which was left behind for so long, and which I myself went to look for at Wolfenbüttel in order to return it to him, since he blamed me for it.[2]

I took the liberty of adding to it a letter and some documents for M. Arnauld. And I cherish some hope that when he has read them his insight and sincerity will perhaps cause him to express complete approval of what had appeared strange to him at the outset. For in view of the milder tone which he adopted after my first explanation, he will perhaps go so far as to agree with me when he has seen the last one which, in my opinion, clearly removes the difficulties which he indicated were troubling him. Whatever the situation, I shall be content if he at least considers that these opinions, even if they should be very much mistaken, contain nothing in direct opposition to the definitions of the Church and are consequently tolerable even in a Roman Catholic; for Your Supreme Highness knows, better than I can tell him, that there are tolerable errors, and even errors whose consequences one believes to be destructive of the articles of faith, and yet one does not condemn these errors nor the man who holds them, because he does not approve of these consequences: for example, the Thomists assert that the Molinist hypothesis destroys God's perfection, and in opposition to them the Molinists imagine that the predetermination of the former destroys human liberty. However, the Church

[1] This letter is wrongly dated 30 April 1787 [*sic*] by Gerhardt; Le Roy (p. 290, Lettre XIII, n. 1) provides the correct date and place for it in the Correspondence, on the basis of the Academy edition (A i. 4, 404).

[2] Cf. p. 38.

has not yet made any ruling on the question, and so neither group can be thought heretics nor their opinions heresies. I believe that the same thing can be said about my propositions, and I should like for many reasons to learn if M. Arnauld does not acknowledge it now himself. He is very busy and his time too precious for me to claim that he must employ it in discussing the subject even where it concerns the truth or falsity of the view point. But it is easy for him to judge its tolerability since it is a matter only of knowing if the propositions run counter to certain definitions of the Church.

XIV

Arnauld to Leibniz

28 September 1686 G, p. 63

I thought, Sir, that I might use the freedom you have given me to take my time in replying to your courteous remarks. So I put it off until I had completed a certain work on which I was embarked. I have gained much from doing you justice, since nothing could be more civil and polite than the way you accepted my apologies. It was more than enough to make me decide to confess to you in good faith that I am satisfied by the way you explain what / had at first shocked G, p. 64 me regarding the concept of the individual nature. For a man of integrity must never find it difficult to yield to the truth as soon as he has been made acquainted with it. I was especially struck[1] by the argument that in every true affirmative proposition, necessary or contingent, universal or particular, the concept of the attribute is in a sense included in that of the subject: the predicate is present in the subject.[2]

I see no other difficulties remaining except on the possibility of things, and on this way of conceiving of God as having chosen the universe that he has created amongst an infinite number of other possible universes that he saw at the same time and did not wish to create. But as that strictly has no bearing upon the concept of the individual nature, and since I should have to ponder too long to make clear what my views on that subject are, or rather what I take exception to in the ideas of others, because they do not seem to me to be worthy of God, you will think it advisable, Sir, that I say nothing about it.

[1] Leibniz remembered this remark, and quoted it at the end of a paper on the principle of indiscernibles, C 10.

[2] 'praedicatum inest subjecto'; cf. p. 63.

I prefer to implore you to cast light for me on two things which I find in your last letter, which seem to me important but which I do not clearly understand.

The first is what you understand by 'the hypothesis of the concomitance and harmony between substances', by which you claim that one must explain what happens in the union of soul and body, and the active or passive relationship of a mind with respect to another creature.[1] For I cannot understand what you say by way of explanation of this idea which does not accord, in your opinion, with those who believe that the soul acts physically upon the body and the body upon the soul, nor with those who believe that God alone is the physical cause of these effects, and that soul and body are only the occasional cause of them. 'God', you say, 'created the soul in such a way that ordinarily he has no need of these changes, and what happens to the soul is born to it in its own depths, without its having to adapt itself subsequently to the body, any more than the body to the soul: each one obeying its laws, with the one acting freely and the other without choice, they agree one with another in the same phenomena.'[2]

G, p. 65 Examples will help you to make your / idea better understood. Someone wounds me in the arm. So far as my body is concerned it is only a bodily movement, but my soul immediately feels pain as it would not have done without what has happened to my arm. One asks what causes this pain. You will not allow that my body has acted upon my soul nor that it is God who, on the occasion of what has happened to my arm, has immediately created in my soul this feeling of pain. *You must therefore believe that it is the soul itself which has created it, and that that*[3] *is what you mean when you say that what happens in the soul on the occasion of the body is born to it in its own depths. Saint Augustine was of this opinion,* because he believed that bodily pain was nothing but the sadness which the soul

[1] Cf. p. 65. [2] ibid.

[3] 'c'est que vous entendez' (Gerhardt): corrected by Le Roy (p. 134) to 'c'est ce que vous entendez'.

felt because its body was indisposed. But what reply can one make to those who object that it would then be necessary for the soul to know that its body is indisposed before being sad about it: whereas it appears that it is the pain which warns it that its body is indisposed?

Let us consider another example in which my body makes a certain movement on the occasion of my soul. If I wish to take off my hat, I raise my arm. This upward movement of my arm is not in accordance with the ordinary rules of movements. What then is the cause? It is that the spirits[1] which have entered certain nerves have swollen them. But these spirits have not been determined of themselves towards entering these nerves: or they have not conferred upon themselves the movement which has made them enter these nerves. Who then has conferred it upon them? Is it God on the occasion of my wishing to raise my arm? That is what the advocates of occasional causes suppose, a view with which you apparently do not agree. It therefore appears that it must be our soul. Nonetheless that is apparently what you do not yet admit. For that would be acting physically upon the body. And it seems to me that you believe that one substance does not act physically upon another.

The second matter on which I should like enlightenment is the following remark: 'that in order that the body or matter not be a simple phenomenon, like the rainbow, nor an entity united by accident or by aggregation like a heap of stones, it cannot consist of extension, and there must necessarily be something there that one calls substantial form and / which corresponds in a way to what one calls the G, p. 66
soul.'[2] There are many things to ask about that.

1. Our body and soul are two substances which are really distinct. Now, by putting into the body a substantial form in addition to extension, one cannot imagine that they are two distinct substances. So one does not see how this substantial form might have any connexion with what we call our soul.

[1] 'les esprits'. [2] Cf. p. 66.

2. This substantial form of the body must either be extended and divisible or non-extended and indivisible. If one says the former,[1] it would apparently be *indestructible* as well as our soul. And if one says the latter, one apparently gains nothing by it towards making bodies one in themselves[2] rather than if they were to consist only of extension. For it is the divisibility of extension into an infinite number of parts that gives one trouble in conceiving of its unity. Now this substantial form will not remedy that, if it is as divisible as extension itself.

3. Is it the substantial form of a marble tile that makes it one? If that is the case, what becomes of this substantial form when it ceases to be one because it has been broken into two? Either it is[3] destroyed, or it has become two. The first is inconceivable if this substantial form is not a state of being[4] but a substance. And it cannot be said that it is a state or modality, since the substance of which this form would be the modality would have to be extension; which is, it seems, not your idea. And if this substantial form turns from the one that it was into two, why shall one not say as much of extension alone without this substantial form?

4. Do you give to extension a general substantial form such as certain Scholastics have admitted when they have called it 'the form of corporeity';[5] or do you want there to be as many different substantial forms as there are different bodies, and different by species when they are bodies of different species?

5. Wherein do you situate the unity that one gives to the earth, the sun, the moon, when one says that there is only one earth that we inhabit, one sun that gives us light, one moon that turns in so many days around the earth? Do you think it necessary for this that the earth, for example, com-

[1] Arnauld must surely mean the reverse.
[2] 'unum per se'.
[3] 'Est elle' (Gerhardt): corrected according to Le Roy (p. 135).
[4] 'manière d'être'.
[5] 'formam corporeitatis'.

posed of so many heterogeneous parts, should have a substantial form peculiar to it which gives it this unity? There is no indication / that you think so. I shall say the same of a G, p. 67
tree, a horse. And from there I shall pass to all mixed substances. For example, milk is made up of serum, cream and clotting matter. Has it three substantial forms or only one?

6. In short, it will be said that it is not worthy of a philosopher to admit entities of which one has no clear and distinct notion, and that one has no such notion[1] of these substantial forms, and that furthermore, in your opinion, they cannot be proved by their effects, since you confess that it is by corpuscular philosophy that all the particular phenomena of nature must be explained, and that it is saying nothing to cite these forms.[2]

7. There are Cartesians who, in order to find unity in bodies, have denied that matter was infinitely divisible, and that one must admit indivisible atoms.[3] But I do not think that you share their opinion.

I have studied your little article[4] and found it very subtle. But take care lest the Cartesians may be able to answer you that it does not hurt them, since it seems that you assume a thing which they believe to be false, that a stone falling imparts to itself that increasing velocity which it acquires as it falls. They will say that that comes from the corpuscles, which as they rise cause everything they find in their path to fall, and transfer to it[5] a part of their motion: and that one must not therefore be astonished if body B, the quadruple of A, has more motion when it has fallen a foot than body A after falling four feet; because the corpuscles which have pushed B have communicated to it motion proportionate to its mass, and those which have pushed A likewise.[6] I do not affirm

[1] 'en'. [2] Cf. p. 66.

[3] Cf. Leibniz's reference to Cordemoy (p. 96).

[4] *Brevis demonstratio erroris memorabilis Cartesii:* Leibniz had sent it to Arnauld with his letter of 4/14 July 1686.

[5] 'leur'.

[6] Le Roy (p. 291, n. 10) compares Descartes, *Principia Philosophiae*, Bk. iv, par. 20.

that this reply is correct, but I think at least that you must bend your mind to examining whether that makes no difference. And I should be very glad to know what the Cartesians have said about your article.

I do not know if you have studied what M. Descartes says in his letters about his general principle of mechanics. It seems to me that in trying to show why the same force can raise by means of a machine two or four times what it would
G, p. 68 raise without a / machine,[1] *he declares that he is not taking velocity into consideration*. But I have only a vague memory of it. For I have never made a study of these matters except occasionally and at idle moments, and more than twenty years have passed since I saw any of these books.

I do not wish, Sir, to distract you from any of your pursuits of the least importance, in order to resolve the two doubts I am suggesting to you. You will deal with them as you please and at your leisure.

I would much like to know whether you have not brought to the pitch of perfection two machines which you invented[2] when you were in Paris: one of arithmetic which seemed to function much more perfectly than M. Pascal's,[3] and the other a watch which was absolutely accurate.[4] I am devotedly yours.

[1] Cf. Descartes, *Œuvres*, éd. Adam et Tannery, I, pp. 432–48.

[2] Literally, 'found'.

[3] Pascal's machine could perform only additions and subtractions; Leibniz's could also multiply and divide, and even extract square and cube roots. A model was presented to the Académie des Sciences during Leibniz's stay in Paris (Fischer-Kabitz, pp. 103, 738). Because of the limitations of contemporary craftsmanship, such machines were difficult to construct. Pascal faced such a problem (cf. Klemm, op. cit., pp. 180–81), and Leibniz was constantly trying to have his own machine perfected. At the end of his letter to Arnauld of 28 Nov./8 Dec. 1686 (a passage sent to Arnauld, but not contained in Leibniz's copy) Leibniz complains of the idleness and lack of curiosity of the artisans in Germany, and says that otherwise his arithmetical machine would have been completed long ago (Le Roy, p. 150; Lewis, pp. 60–61). Cf. letters to de la Chaise, c. 1680 (A ii. 1, 512) and to des Billettes, 1696 (G vii. 454).

[4] During his stay in Paris, Leibniz invented a watch whose movement was regulated by a balance spring. Independently, Huygens had done

XV

The Landgrave to Leibniz

Rheinfels, 21/31 October 1686

I am sending you enclosed a letter from M. Arnauld, which by some negligence or other has been here a fortnight, and which because of being busy in so many other affairs I have not read; also such matters are for me far too lofty and speculative. I am also sending you some other documents that may interest you and I am and remain etc.

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the same, and he published his discovery in the *Journal des Savants* for February 1675, a month before Leibniz published his discovery. It may be added that Huygens' invention was much more practical than Leibniz's. (Fischer-Kabitz, p. 738). On Huygens' discovery, and Hooke's claim to have anticipated it, see M. 'Espinasse, *Robert Hooke* (London, 1956), pp. 60 ff.

XVI

Draft of a letter from Leibniz to Arnauld[1]

The hypothesis of concomitance is a consequence of the concept I have of substance. For in my view the individual concept of a substance embraces everything that is ever to happen to it; and it is in this respect that complete entities differ from incomplete ones. Now, since the soul is an individual substance, its concept, notion, essence or nature must
G, p. 69 include / everything that is to happen to it; and God, who sees it perfectly, sees what actions it will perform or undergo for evermore, and all the thoughts it will have. Therefore, since our thoughts are only consequences of the nature of our soul, and are born in it by virtue of its concept, it is useless to require the influence of another particular substance, not to mention that this influence is absolutely inexplicable. To be sure, certain thoughts occur to us when there are certain bodily movements, and certain bodily movements occur when we have certain thoughts; but it is because each substance is an expression of the whole universe after its own manner, and this expression of the universe, which constitutes a movement in the body, is perhaps a pain so far as the soul is concerned. But one attributes action to that substance whose expression is more distinct, and one calls it cause. Just as when a body swims in water, there is an infinite number of movements by the parts of the water, as is necessary in order that the place which this body vacates be always filled by the shortest possible path. That is why we say that this body is the cause of it, because by means of it we can explain distinctly what happens; but if one examines what physical reality exists in motion, one can as well assume that this body

[1] A sketch of the following letter, which was the one actually sent to Arnauld.

is at rest, and that everything else is moving in conformity with this hypothesis, since the whole movement in itself is only relative, that is to say a change of location, which cannot be attributed to anything with mathematical precision; but one attributes it to a body by whose means everything is distinctly explained. And indeed, considering every phenomenon large and small, there is only one hypothesis which can be of use in explaining the whole distinctly. And it can even be said that although this body is not an efficient physical cause of these effects, its notion at least is so to speak the final or, if you wish, exemplary cause in God's understanding. For if one wishes to find out whether something real exists in motion, let one imagine that God deliberately wishes to produce all the changes of location in the universe, just as if this vessel were producing them in sailing through the water; is it not the case that indeed precisely this would occur? For it is impossible to establish any real difference. Thus in metaphysical precision one is no more correct in saying that the vessel pushes the water to make this great quantity of circles which serve the purpose of filling the place of the vessel than in saying that the water is pushed to make all these / circles, and that it pushes the vessel to move G, p. 70
accordingly; but unless one says that God has deliberately wished to produce such a great quantity of movements in such a harmonious manner, one cannot account for it, and since it is unreasonable to fall back upon God in details, one falls back upon the vessel, although in truth in the last analysis the accord of all the phenomena of the different substances comes only from their all being productions of one and the same cause, namely God, who makes each individual substance an expression of the decision he has taken regarding the whole universe. So it is that for the same reason one attributes pains to bodily movements, because one can thereby arrive at something distinct. And that is of value[1] in

[1] The rest of this paragraph is very obscure, but Leibniz seems to be arguing as follows. The supposition that certain bodily movements cause pain is useful, in that it enables us to obtain feelings of pleasure and to

acquiring us phenomena or preventing them. However, so as not to put anything forward without necessity, we merely think, and so we acquire only thoughts, and phenomena are only thoughts. But as all our thoughts are not efficacious, and are of no avail in acquiring for us others of a certain nature, and since it is impossible for us to uncover the mystery of the universal connexion between phenomena, one must, by way of experience, watch out for those thoughts that acquire us some on other occasions, and herein are to be found the use of the senses and what is called action outside ourselves.

The hypothesis of the concomitance or harmony between substances follows from what I have said about each individual substance embracing for ever all the accidents that will occur to it and being an expression after its own manner of the whole universe; so what is expressed in the body by a movement or change of location is perhaps expressed in the soul by a pain. Since pains are only thoughts,[1] one must not be surprised if they are consequences of a substance whose nature is to think. And if it happens constantly that certain thoughts are joined to certain movements, the reason is that God first created all substances so that subsequently all their phenomena might correspond, without the need of a mutual physical influence, which does not appear even to be explicable; perhaps M. Descartes was in favour of this concomitance rather than the hypothesis of occasional causes, for he did not express his opinion upon this point so far as I know.

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avoid feelings of pain. Strictly, however, we do nothing but think (i.e. bodily movements are only phenomena). How, then, are we to obtain phenomena of the kind we want? We cannot always produce them at will, nor can we follow out God's plan in all its detail—that is, we cannot see *a priori* why a certain kind of phenomenon should be followed by phenomena of a certain other kind. We must, therefore, argue inductively from the way we find phenomena to be associated.

[1] Leibniz here uses the word 'pensée' in a wide sense, corresponding to that given to it by Descartes. Cf. Anscombe & Geach, *Descartes: Philosophical Writings* (London, 1954), pp. xlvii–xlviii.

I wonder at your noting, Sir, that St. Augustine has already expressed such views when he maintained that pain is nothing other than a / sadness of the soul felt because of its G, p. 71
body's indisposition.[1] This great man certainly probed deeply into things. However, the soul feels that its body is indisposed not through an influence of the body upon the soul nor through a particular warning operation by God, but because it is the nature of the soul to express what happens in bodies, since it was created in the first place in such a way that the succession of its thoughts may harmonize with the succession of movements. The same can be said of the upward movement of my arm. In answer to the question of what determines spirits[2] to enter nerves in a certain way[3] I reply that it is both the impression made by objects and the arrangement of spirits and nerves themselves, by virtue of the ordinary laws of motion. But by the general concordance of things, the whole of this arrangement occurs only when there exists at the same time in the soul that act of will to which we customarily ascribe the operation. Thus souls effect no change in bodily order, nor bodies in that of souls. (And it is for this reason that forms must not be used to explain natural phenomena.) And a soul effects no change in the course of thoughts of another soul. And in general one particular substance has no physical influence over another; furthermore, it would be useless, seeing that each substance is a complete entity, self-sufficient to determine by virtue of its own nature everything that is to happen to it. Yet one is quite right to say that my will is the cause of this movement of my arm, and that a dissolution of the continuum[4] in my bodily matter causes the pain; for the one expresses distinctly what the other expresses more confusedly, and one must ascribe the action to the substance whose expression is more distinct. All the more so because that is enough[5] in practice for acquiring phenomena. If it is not a physical cause, one

[1] Cf. pp. 78–9. [2] 'les esprits': cf. p. 79. [3] 'matière' (Gerhardt): corrected according to Le Roy ('manière'—p. 140). [4] 'solutio continui'.
[5] 'soit' (Gerhardt): corrected according to Le Roy ('suffit'—p. 140).

can say that it is a final or, to put it better, exemplary cause, that is to say that its notion in God's understanding has contributed to God's decision regarding this particularity, when it was a matter of deciding the universal succession of things.

The other difficulty is incomparably greater, concerning substantial forms and the souls of bodies;[1] and I confess that I am not satisfied about it. In the first place, one would have to be sure that bodies are substances and not merely true phenomena like the rainbow. But once that is granted, I
G, p. 72 believe one can infer that bodily substance / does not consist of extension or divisibility; for it will be conceded that two bodies set apart from one another, for instance two triangles, are not really one substance; let us now assume that they come together to make up a square, will the mere fact of their contiguity turn them into one substance? I do not think so. Now, each extended mass can be considered as composed of two or a thousand others; there exists only an extension achieved through contiguity. Thus one will never find a body of which it may be said that it is truly one substance. It will always be an aggregate of many. Or rather, it will not be a real entity, since the parts making it up are subject to the same difficulty, and since one never arrives at any real entity, because entities made up by aggregation have only as much reality as exists in their constituent parts. From this it follows that the substance of a body, if bodies have one, must be indivisible; whether it is called soul or form does not concern me. But also the general concept of individual substance, which you seem rather inclined to accept, Sir, proves the same thing. Extension is an attribute which cannot make up a complete entity, no action or change can be deduced from it, it expresses only a present state, not at all the future and past as the concept of a substance must do. When two triangles are found linked together, one cannot deduce therefrom how the link was made. For that can have occurred in many ways, but anything capable of having

[1] Cf. pp. 78–81.

many causes is never a complete entity. Nevertheless, I acknowledge that it is very difficult to resolve many of the problems you mention. I think one must say that if bodies have substantial forms, for instance if animals have souls, then these souls are indivisible. That is also St. Thomas' opinion. Are these souls then indestructible? I admit it, and as it is possible that according to M. Leeuwenhoeck's opinion[1] the birth of every animal is merely a transformation of an animal already alive, there are grounds for believing too that death is merely another transformation. But the human soul is something more divine; it is not only indestructible, but always knows itself and remains self-conscious.[2] And as for its origin, it may be said that God produced it only when this animate body which is in the seed determines itself to take human form. This animal soul, which formerly animated this body before the transformation, is destroyed when the rational soul takes its place, or if God changes G, p. 73
one / into the other, in giving to the former a new perfection by means of an extraordinary influence. This is a detail about which my knowledge is insufficient.

I do not know if the body, when the soul or substantial form is left aside, can be called a substance. It may well be a machine, an aggregate of many substances, in such a way that if I am asked what I am obliged to say concerning the form of the corpse[3] or of a marble tile, I shall say that they are perhaps united by aggregation[4] like a heap of stones and are not substances. One can say as much of the sun, earth, machines, and apart from man there is no body about which

[1] Leibniz is referring to the microscopist Anthonie van Leeuwenhoek (1632–1723). Using very small bi-convex lenses, of high magnifying power, Leeuwenhoek was able to study spermatozoa and the red corpuscles in the blood more thoroughly than others had been able to do, and he was the first to observe protozoa and bacteria. He communicated these discoveries to the Royal Society during 1677 and 1678. Cf. Le Roy, p. 294 n. 9; 'Espinasse, op. cit., p. 79; A. R. Hall, *The Scientific Revolution, 1500–1800* (2nd ed., London, 1962), pp. 241–2, 294.

[2] 'conscia sui'.

[3] 'de forma cadaveris'.

[4] 'per aggregationem'.

I can declare that it is a substance rather than an aggregate of many or perhaps a phenomenon. However, it seems to me certain that if there are bodily substances, they do not belong to man alone,[1] and it appears probable that animals have souls although they lack consciousness.

In short, although I agree that the study of forms or souls is of no use in the physicist's study of particular phenomena,[2] it is nonetheless important in metaphysics. Very much as geometers do not care about the composition of the continuum,[3] and physicists are not troubled as to whether one ball pushes another or whether it is God who does so.

It would be unworthy of a philosopher to admit these souls or forms without reason, but otherwise it is incomprehensible how bodies are substances.

[1] 'l'homme ne l'est point seul'.
[2] 'dans la physique particulière'. Cf. p. 66; DM, par. 18.
[3] 'de compositione continui'.

XVII

Leibniz to Arnauld

Hanover, 28 November/8 December 1686

Since I have found something quite unusual in the candour and sincerity with which you have deferred to certain arguments that I had used, I cannot permit myself not to acknowledge and admire it. I indeed suspected that the argument taken from the general nature of propositions would make some impression on you;[1] but / I also admit that G, p. 74
few are capable of appreciating truths so abstract and that perhaps anybody else but you would not so easily have perceived its force.

I should like to be informed of your thoughts on the possibility of things, for they cannot be anything but profound and important, all the more so because one must speak of these possibilities in a manner worthy of God. But that will be according to your convenience. As for the two difficulties which you find in my letter, one concerning the Hypothesis of the Concomitance or Harmony between substances, the other concerning the nature of the forms of bodily substances, I confess that they are considerable, and if I could clear them up completely, I should think myself able to make out the meaning of the greatest secrets in universal nature. But 'it is of some value to advance to a certain point'.[2] And as for the first argument, I find that you give an adequate explanation yourself of what you had found to be obscure in my thinking on the Hypothesis of Concomitance;[3] for when the soul feels pain at the same time as when the arm is wounded, I am indeed of your opinion, Sir, when you say that the soul creates for itself this pain, which is a natural

[1] Cf. p. 77, n. 1.

[2] 'est aliquid prodire tenus' (a modification of Horace, *Epistles* I, 1, v. 32).

[3] Cf. pp. 78–9.

consequence of its state or concept; and I wonder that St. Augustine, as you have observed, seems to have admitted the same thing by saying that the pain which the soul feels in these conjunctures is nothing other than a sadness accompanying the indisposition of the body. In truth, that great man had very solid and profound thoughts. But (it will be said) how does the soul know of this indisposition of the body? My reply is that it is not through any impression or action of bodies upon the soul, but because the nature of every substance bears a general expression of the whole universe, and because the nature of the soul bears more particularly a more distinct expression of what is happening now that concerns its body. That is why it is natural for it to register and know the accidents of its body by its own accidents. It is the same for the body, when it adapts itself to the thoughts of the soul; and when I wish to raise my arm, it is precisely at the moment when everything is arranged in the body so as to carry this out, in such a manner that the body moves by virtue of its own laws; although it happens through the wonderful but unfailing harmony between things that these laws conspire towards that end precisely at the moment when the will is inclined to it, since God took it into consideration in advance, when he made his decision about this succession
G, p. 75 of all things in the universe. / All these are merely consequences of the concept of an individual substance which embraces all its phenomena, in such a way that nothing can happen to a substance which is not born to it in its own depths, but in conformity with what happens to another, though one acts freely and the other without choice. And this harmony is one of the finest proofs that one can give of the necessity of a sovereign substance which is the cause of everything.

I should like to be able to express my ideas as clearly and decisively on the other question, regarding substantial forms. The first difficulty that you point out,[1] Sir, is that our body

[1] Leibniz now proceeds to deal methodically in turn with the seven objections raised by Arnauld: cf. pp. 79–81.

and soul are two substances which are really distinct; from which it seems that one is not the substantial form of the other. I reply that in my opinion our body in itself, leaving the soul aside, i.e. the corpse,[1] cannot be correctly called a substance, like a machine or a heap of stones, which are only entities through aggregation; for regular or irregular arrangement has no effect on substantial unity. Besides, the last Lateran Council[2] asserts that the soul is truly the substantial form of our body.

As for the second difficulty, I concede that the substantial form of the body is indivisible, and it seems to me that that is also St. Thomas' opinion; and I concede furthermore that every substantial form or indeed every substance cannot be destroyed or even engendered, which was also the opinion of Albert the Great,[3] and among the Ancients that of the author of the book *Concerning Diet* which is attributed to Hippocrates.[4] They can therefore come into existence only through an act of creation. And I am much inclined to believe that all the births of animals lacking reason and not meriting a new creation are merely transformations of another animal who is already alive but sometimes imperceptible; after the example of the changes which occur to a silkworm and other similar ones, since nature is in the habit of revealing its secrets in certain examples which it hides on other occasions. Thus crude souls would all have been created since the beginning of the world, according to that fecundity of seed mentioned in Genesis; but the rational soul is created only at the time of the formation of its body, since it is totally different from the other souls that we know, because it is capable of reflection and imitates in miniature the nature of God.

Thirdly, I believe that a marble tile is perhaps only the G, p. 76
same as a heap of stones and thus cannot be considered a

[1] 'cadaver'.
[2] The Fifth Lateran Council (1512–17).
[3] Scholastic philosopher, scientist and theologian (1206–80).
[4] Bk. I, 4.

single substance but a collection of many. For let us assume that there are two stones, for instance the diamonds of the Grand Duke and of the Grand Mogul: one and the same collective name may be given to account for both, and it may be said that they are a pair of diamonds, although they are to be found a long way away from each other; but it will not be said that these two diamonds compose one substance. Matters of degree have no place here. If therefore they are brought closer to one another, even to the point of contact, they will not be more substantially united on that account; and even if after contact one were to add some other body calculated to prevent their separating, for example if one were to set them in a single ring, all that will make only what is called 'one by accident'.[1] For it is as though by accident that they are forced into one and the same movement. I therefore maintain that a marble tile is not a single complete substance, no more than would be the water in a pool with all the fish included, even if all the water with all these fish were frozen; or a flock of sheep, even though these sheep should be bound together to such an extent that they could walk only at the same pace and that one could not be touched without all the others crying out. There is as much difference between a substance and such an entity as there is between a man and a community, such as a people, army, society or college, which are moral entities, where[2] something imaginary exists, dependent upon the fabrication of our minds. Substantial unity requires a complete, indivisible and naturally indestructible entity, since its concept embraces everything that is to happen to it, which cannot be found in shape or in motion (both of which embrace something imaginary, as I could prove), but in a soul or substantial form after the example of what one calls *self*. These are the only truly complete entities, as the Ancients had recognized, especially Plato, who demonstrated very clearly that matter is not enough by itself to form a substance. Now, the

[1] 'unum per accidens'.

[2] 'ou' (Gerhardt): corrected according to Le Roy (p. 145).

above-mentioned *self*, or its counterpart in each individual substance, cannot be made or unmade by placing the parts nearer together or farther apart, for this is totally foreign to the question of what creates substance. I cannot say with certainty whether there are genuine bodily substances other / than the animate ones, but at least souls are useful in pro- G, p. 77
viding us by analogy with some knowledge of the others.

All that may contribute to the elucidation of the fourth difficulty, for without troubling myself about what the Scholastics called 'the form of corporeity',[1] I accord substantial forms to all bodily substances that are more than mechanically united. But in the fifth place, if I am asked for my views in particular on the sun, the globe of the earth, the moon, trees and similar bodies, and even on animals, I cannot declare with absolute certainty if they are animate, or at least if they are substances or even if they are simply machines or aggregates of many substances. But at least I can say that if there are no bodily substances such as I can accept, it follows that bodies will be no more than true phenomena like the rainbow; for the continuum is not only infinitely divisible, but every part of matter is in fact divided into other parts as different one from another as the two diamonds mentioned above; and since it continues endlessly in this way, one will never arrive at a thing of which it may be said: 'Here really is an entity', except when one finds animate machines whose soul or substantial form creates substantial unity independent of the external union of contiguity. And if there are none, it follows that apart from man there is apparently nothing substantial in the visible world.

In the sixth place, as the concept of individual substance in general which I have provided is as clear as that of truth, the concept of bodily substance will be so also, and consequently that of substantial form. But even if it were not, we are obliged to admit many things about which knowledge is not sufficiently clear and distinct. I maintain that what we

[1] 'formam corporeitatis'.

know about extension is much less so still, as witness the strange problems over the composition of the continuum; and it can even be said *that there is no fixed and precise shape in bodies because of the actual subdivision of the parts.* With the result that *bodies would undoubtedly be merely imaginary and apparent, if there existed nothing but matter and its modifications.* However, it is useless to mention the unity, concept or substantial form of bodies, when it is a question of explaining the particular phenomena of nature, just as it is useless for geometers to study the difficulties concerning the composi-
G, p. 78 tion of the continuum,[1] when they / are endeavouring to work out a certain problem. These matters are nonetheless important and significant in their place. All bodily phenomena can be explained mechanically or by corpuscular philosophy, following certain principles of mechanics granted without troubling whether souls exist or not; but in the final analysis of the principles of physics and of mechanics even, it is found that these principles are not explicable purely by the modifications of extension, and the nature of force already requires something else.

Finally, in the seventh place, I recall that M. Cordemoy, in order to preserve substantial unity in bodies in his treatise about the discrimination between the soul and the body,[2] thought himself obliged to admit atoms, or indivisible bodies possessing extension, so that he could find some regular basis for the creation of a simple entity; but you were right, Sir, in thinking that I would not share this view. It appears that M. Cordemoy had recognized some part of the truth, but he had not yet seen wherein lies the true concept of a substance, and moreover it is there that the key to the most important knowledge is to be found. If man contains only a figured mass of infinite hardness (which I consider as no more consistent with divine wisdom than the void), he cannot in himself embrace all past and future states, and still less those of the whole universe.

[1] 'de compositione continui'.

[2] *Discours sur le discernement de l'âme et du corps*, Paris, 1666.

I come to your remarks about my objection to the Cartesian principle on the quantity of movement,[1] and I agree, Sir, that the increase in the velocity of a body which has weight comes from the impulse of some invisible fluid, and that it is like a vessel which the wind at first drives along very little, but then more. But my demonstration depends on no hypothesis. Without worrying at present about how the body has acquired its speed, I consider the speed just as it exists, and I say that a body weighing one pound with a speed of two degrees has twice as much force as a body of two pounds with a speed of one degree, because it can raise the same weight twice as high. And I maintain that in distributing the movement between colliding bodies one must take into consideration not the quantity of movement, as M. Descartes does in his rules, but the quantity of force; otherwise one might obtain perpetual mechanical movement. For instance,[2] let us assume that in a square LM a

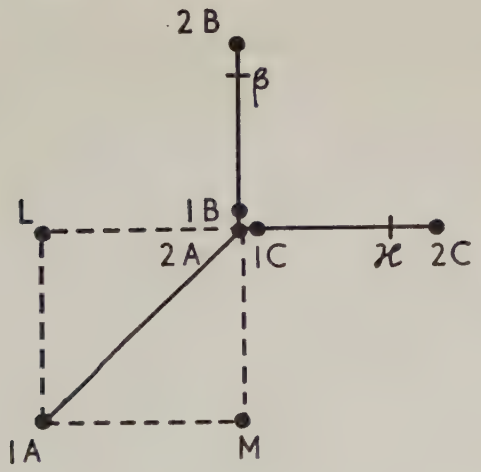

FIG. 1

[1] Cf. pp. 81–2.

[2] See Fig. 1

body A goes by the diagonal 1A 2A, and collides at the
G, p. 79 same time with two bodies B and C equal to it, in / such a way that at the moment of impact the three centres of these three spheres are situated in a right-angled isosceles triangle, the whole being on a horizontal plane; let us now assume that body A remains at rest after the impact in the place 2A, and imparts all its force to bodies B and C; in that case B will go from 1B to 2B with the velocity and direction 1B 2B, and C from 1C to 2C with the velocity and direction 1C 2C. In other words, if A had taken one second to come at uniform speed from 1A to 2A before the impact, it will take also one second after the impact for B to reach 2B and C 2C. In answer to the question of the length of 1B 2B or 1C 2C, which represents the speed, I say that it must be equal to AL or AM, which are sides of the square LM. For since the bodies are assumed to be equal, the forces are as the heights from which the bodies must fall in order to acquire these speeds, that is to say as the squares of the speeds. Now, the squares 1B 2B and 1C 2C taken together are equal to the square 1A 2A. There is, therefore, as much force after as before the impact, but it can be seen that the quantity of movement is increased; for since the bodies are equal it can be estimated from their speeds; now, before the impact, it was the speed 1A 2A, but after the impact it is the speed 1B 2B plus the speed 1C 2C; now 1B 2B + 1C 2C is more than 1A 2A; so according to M. Descartes, in order to preserve the same quantity of movement, body B would go from 1B only as far as β or from 1C only to $\varkappa$, in such a way that 1Bβ or 1C$\varkappa$ are each equal to half of 1A 2A. But in this way, to the extent that the two squares of 1Bβ and 1C$\varkappa$ together are less than the square 1A 2A, to that extent will there be lost force. And in exchange I shall show that in another way force can be gained by the impact. For since, according to M. Descartes, body A with the speed and direction 1A 2A imparts by hypothesis[1] to bodies B and C at rest the speeds and directions 1Bβ and 1C$\varkappa$ in order to rest

[1] 'ex hypothesi'.

itself in their place, it must reciprocally be the case that these bodies returning or moving upon body A as it rests at 2A with the speeds and directions β1B and $\varkappa$1C, at rest after the impact, cause it to move with the speed and direction 2A 1A. But in that way perpetual movement could / infallibly occur, for, assuming that body B weighing one pound and having the speed β1B can rise by one foot, and C likewise, there was before the impact a force capable of raising two pounds one foot, or one pound two feet. But after the impact of 1B and 1C upon 2A, body A weighing one pound and having a double speed (the speed 2A 1A which is double the speed β1B or $\varkappa$1C) will be able to raise one pound four feet, for the heights to which the bodies can rise by virtue of their speeds are as the squares of those speeds. Now, if double the force can be acquired thus, perpetual movement is discovered, or rather it is impossible for force to be at all gained or lost, and these rules are badly thought out for one to be able to infer such consequences from them. G, p. 80

I have found in M. Descartes's letters what you had pointed out to me, that he speaks of having deliberately tried to cut out consideration of velocity when he considered the ratios of ordinary moving forces, and to have taken only height into consideration. If he had remembered that when he was writing his principles of physics, he might perhaps have avoided the errors into which he fell regarding the laws of nature. But he happened to cut out consideration of velocity where he was able to include it, and to include it where it leads to errors. For where forces which I call 'dead' are concerned (as when a body makes its initial endeavour to fall without yet having acquired any impetus from the continuing movement), likewise[1] when two bodies are as it were balancing one another (for then the first stresses that one makes upon the other are always dead ones), it happens that velocities are like spaces; but when one considers the absolute force of bodies which have a certain impetus (which

[1] 'item'.

it is necessary to do in order to establish the laws of motion) the estimate must be made from the cause or effect, that is to say from the height to which it can rise by virtue of this speed or from which it should fall to acquire this speed. And if one wanted to use velocity there, one would lose or gain a great deal of force without any reason. Instead of height one might presuppose a spring or some other cause or effect, which will always come down to the same thing, that is to say to the squares of the speeds.

I have found in the *Nouvelles de la République des lettres* for the month of September of this year that a certain M.
G, p. 81 l'abbé D. C.[1] of Paris, whom I / do not know, has replied to my objection. The trouble is that he does not seem to have thought deeply enough about the problem. While making a great fuss about refuting me, he concedes me more than I want, and he limits the Cartesian principle to the single case of isochronous forces, as he calls them, as in the five ordinary machines, which is completely contrary to M. Descartes's intention; in addition to that, he believes that in the case I had proposed, the reason for one of the two bodies being as strong as the other, although it has a lesser quantity of movement, comes from the fact that this body has been falling for a longer time, since it has come from a greater height. If that were to have some effect, the Cartesian principle that he wishes to defend would be sufficiently ruined by that itself; but this reason is not valid, for these two bodies can fall from these different heights in the same time, according to the incline that is given to the planes in which they must fall, and yet the objection will nevertheless remain in its entirety. I would therefore like my objection to be examined by a Cartesian who is a geometer and versed in these matters.[2]

[1] This was the abbé de Catelan, as Arnauld informed Leibniz later: cf. p. 111.

[2] There follows a section of some twenty lines in the Le Roy edition (p. 150), to be found in the copy of the letter sent to Arnauld. It contains little additional information, other than to say that the two machines about which Arnauld had enquired (cf. p. 82) were not yet completed.

Finally, as I have an infinite regard for you and take a keen interest in anything that affects you, I shall be delighted to learn on occasion about the state of your health and the works you have in hand, for I pride myself that I know their value. I am zealously, etc.

XVIII

Leibniz to the Landgrave

Hanover, 28 November/8 December 1686

Extract from my letter.[1]

I take the liberty, My Lord, of beseeching Your Supreme Highness again that he be pleased to give orders that the enclosed papers for M. Arnauld should reach him; and as the discussion therein deals with subjects far removed from the external senses and dependent upon pure intellect, subjects which are unprepossessing and most often scorned by the liveliest people, most excellent in the affairs of the
G, p. 82 world, I shall say something here in favour of these / meditations, not that I am ridiculous enough to desire that Your Supreme Highness be diverted by them (which would be as unreasonable as desiring that a general should bend his mind to algebra, although this science is very useful for anything relating to mathematics): but in order that Your Supreme Highness may better judge the aim and use of such thoughts, which might appear unworthy to occupy, even a little, a man whose every moment must be precious. Indeed, the way that these things are generally treated by the Scholastics makes them into mere quarrels, subtle distinctions, plays on words; but there are veins of gold in these sterile rocks. I state as a matter of fact that thought is the main and constant function of our soul. We shall always think, but we shall not always live here. That is why what makes us more capable of thinking about the most perfect

[1] Leibniz's annotation. Gerhardt's text here is based on Leibniz's copy of the extract. Le Roy (pp. 151 ff.) follows the Academy edition of the complete letter (A i. 4, 407 ff.); this is based on a copy (now in the Landesbibliothek, Cassel) of the letter which the Landgrave received. The differences between the two versions are insignificant.

objects and in a more perfect way is what naturally perfects us. However, the present state of our life forces us into a host of confused thoughts which do not make us more perfect. Of this kind is the knowledge of customs, genealogies, languages and even every historical piece of knowledge of facts both civil and natural, that is of use in avoiding the dangers and handling the physical objects and the human beings that surround us, but does not enlighten the mind. It is useful for a traveller to know the roads when he is on a journey; but what is more important is anything possessing a closer connexion with the functions to which he will be destined in his homeland.[1] Now, we are destined to live one day a spiritual life in which the substances separate from matter will occupy us much more than bodies. But in order to discriminate more clearly between what enlightens the mind and what merely leads it on blindly, here are some examples drawn from the crafts: if a certain workman knows from experience or from tradition that since the diameter is 7 feet long the circumference of the circle is a little less than 22 feet; or if a gunner knows by hearsay or from often having measured it that bodies are thrown farthest at an angle of 45 degrees, it is the confused knowledge of a working-man who will make very good use of it in earning his living and doing service to others; but the items of knowledge that enlighten our mind are those which are distinct, that is to say which contain causes or reasons, as when Archimedes gave the proof of the first rule and Galileo of the second; and in a word, it is only the knowledge of reasons in themselves or of necessary and eternal truths, particularly of those which are the most / comprehensive and have the most connexion G, p. 83 with the sovereign being, which can perfect us. Only this knowledge is good in itself; everything else is mercenary and must be learned only from necessity, because of the needs of this life and in order to be all the better equipped thereafter for attending to the perfection of the mind, when one has put one's sustenance in order. However, the disorderly state

[1] 'in patria'.

of men and what is called the preoccupation 'with bread-winning'[1] and often vanity too cause one to forget the master for the servant and the end for the means. It is exactly what the poet says: 'on account of living, losing what makes life worth living'.[2] Very much the way a miser prefers gold to health, whereas gold is merely of service for the amenities of life. Now, since what perfects our mind (the light of grace apart) is the demonstrative knowledge of the greatest truths by means of their causes or reasons, one must confess that metaphysics or natural theology, which deals with immaterial substances, and particularly with God and the soul, is the most important of all. And one cannot make sufficient progress in it without being familiar with the true concept of substance, which I have explained in such a way in my last letter to M. Arnauld that he himself, who is so precise, and who had been shocked by it at the beginning, deferred to it. Finally, these meditations supply us with consequences that are surprising but wonderfully useful for freeing oneself from the greatest doubts regarding the concourse of God with creatures, his prescience and preordination, the union of soul and body, the origin of evil, and other matters of this kind. I make no mention here of the great uses to which these principles can be put in the human sciences; but at least I can say that nothing elevates our mind more to the knowledge and love of God, to the extent that nature helps us along that path. I grant that all this is useless without grace, and that God grants grace to people who have never dreamed of these meditations; but God nevertheless wishes that we should neglect nothing that is ours, and that we should use according to the occasion (each one according to his calling) the perfections he has given to human nature; and since he created us only that we might know and love him, one cannot work enough towards that end nor make a better use of our time and strength, if we are not occupied elsewhere by public affairs and the welfare of others.

[1] 'de pane lucrando'.

[2] 'propter vitam vivendi perdere causas' (Juvenal, *Satires*, VIII, v. 84).

XIX

G, p. 84

Arnauld to Leibniz

4 March 1687

It is a long time since I received your letter, but I have been so busy since then that I have not been able to answer it sooner.

I do not clearly understand what you mean by this 'more distinct expression that our soul bears of what is happening now that concerns its body',[1] and how that can bring it about that when my finger is pricked my soul knows of this prick before it feels pain from it. This same more distinct expression should therefore acquaint it with an infinite number of other things occurring in my body, of which it is nevertheless ignorant, as for instance all the functions of digestion and nutrition.

As for your statement that although my arm rises when I wish to raise it, it is not that my soul causes this movement in my arm, but that 'when I wish to raise it, it is precisely at the moment when everything is arranged in the body so as to carry this out; in such a manner that the body moves by virtue of its own laws, although it happens through the wonderful but unfailing harmony between things that these laws conspire towards that end precisely at the moment when the will is inclined to it, since God took it into consideration in advance, when he made his decision about this succession of all things in the universe'.[2] It seems to me that that is saying the same thing in other words as those who claim that my will is the occasional cause of the movement of my arm and that God is the real cause of it. For they do not claim that God does that in time through a new act of will which he exercises each time I wish to raise my arm; but by

[1] Cf. p. 92.

[2] ibid.

that single act of the eternal will, whereby he has wished to do everything which he has foreseen that it would be necessary to do, in order that the universe might be what he deemed it was to be. Now, is that not the substance of your remarks when you say that the cause of the movement of my arm, when I wish to raise it, is 'the wonderful but unfailing
G, p. 85 harmony between things, which comes / from the fact that God took it into consideration in advance when he made his decision about this succession of all things in the universe'? For this 'consideration by God' has not been able to cause a thing to happen without a real cause: the real cause of this movement of my arm must therefore be found. You will not allow that it is my will. I do not think either that you believe that a body can move itself or another body as real and efficient cause. It remains therefore that it is this 'consideration by God' which is the real and efficient cause of the movement of my arm. Now, you yourself call this consideration by God 'his decision', and decision and will are the same thing: therefore, according to you, every time I wish to raise my arm, it is God's will which is the real and efficient cause of this movement.

For the second problem,[1] I now know your view to be quite different from what I had thought. For I had imagined that you were reasoning thus: bodies must be true substances; now, they cannot be true substances without having a true unity, nor have a true unity without having a substantial form; hence the essence of body cannot be extension; every body, in addition to extension, must have a substantial form. To this I had objected that a substantial form which is divisible, as they almost all are in the opinion of the advocates of substantial forms, cannot give a body the unity that it would not have without this substantial form.

You agree, but claim that no substantial form can be divided, destroyed or engendered, since it can be produced only by a true act of creation.

From this it follows: (1) that every divisible body where

[1] Cf. pp. 92–6.

each part remains of the same nature as the whole, like metals, stones, wood, air, water and other liquid bodies, has no substantial form.

(2) That plants have none either, since the part of a tree which is either planted in the ground or grafted on to another, remains a tree of the same species as before.

(3) That therefore only animals will have substantial forms. Therefore, according to you, only animals will be true substances.

(4) And yet you are not so sure of it as not to say that if /animals have no soul or substantial form, it follows that G, p. 86 except for man there is apparently nothing substantial in the visible world, because you claim that substantial unity requires a complete, indivisible and naturally indestructible entity, which one can find only in a soul or substantial form, after the example of what is called 'self'.

All that comes down to saying that all bodies whose parts are only mechanically united are not substances but only machines or aggregates of many substances.

I shall begin with this last point, and I shall tell you frankly that in that there is only a quibble over words. For St. Augustine feels no difficulties about recognizing that bodies possess no true unity, because unity must be indivisible and no body is indivisible. Hence there is no true unity except in spirits,[1] any more than there is a true 'self'. But what conclusion do you draw from that? 'That there is nothing substantial in bodies which have no soul or substantial form.' In order that this conclusion might be valid, one would first have to define 'substance' and 'substantial' in the following terms: I call 'substance' and 'substantial' that which has a true unity. But as this definition has not yet been accepted, and since there is no philosopher who is not as entitled to say: I call 'substance' that which is not modality or state, and who cannot consequently maintain that it is paradoxical to say that there is nothing substantial in a block of marble, since this block of marble is not the

[1] 'esprits'.

state of being of another substance; and that all that one might say is that it is not a single substance but many substances mechanically joined together.[1] Now this, it seems to me, is a paradox, this philosopher will say, that there is nothing substantial in what is many substances. He may add that he understands still less what you say, 'that bodies would undoubtedly be merely imaginary and apparent, if there existed nothing but matter and its modifications'. For you put only matter and its modifications into everything that has no soul or substantial form, which cannot be divided, destroyed or engendered; and it is only in animals that you admit of these kinds of 'forms'. You would therefore be obliged to say that all the rest of nature is / 'merely imaginary and apparent'; and you should say the same all the more of all the works of men.

G, p. 87

I cannot agree with these last propositions. But I see no drawback to believing that in the whole of corporeal nature there are only 'machines' and 'aggregates'[2] of substances, because of none of these parts can one say, accurately speaking, that it is a single substance. That indicates only what it is very proper to note, as did St. Augustine, that thinking or spiritual substance is in that respect much more excellent than extended or corporeal substance, that only the spiritual has a true unity and a true self, which the corporeal does not have. From which it follows that one cannot adduce this as proof that extension is not the essence of matter, because it would have no true unity if it had extension as its essence, since it may be of the essence of matter not to have true unity, as you admit of all those bodies which are not joined to a soul or substantial form.

But I do not know, Sir, what leads you to believe that

[1] Arnauld seems to have lost track of the syntax of this sentence: the 'as' and 'since' clauses should be taken up by some later clause, e.g. 'therefore . . .'.

[2] Leibniz added a note at this point: 'If there are aggregates of substances, there must also exist true substances from which all the aggregates are made.'

animals have these souls or substantial forms, which in your opinion 'cannot be divided, destroyed or engendered'. It is not that you consider this necessary for explaining their behaviour. For you explicitly state 'that all bodily phenomena can be explained mechanically or by corpuscular philosophy, following certain principles of mechanics granted without troubling whether souls exist or not'. Nor is it from the necessity for the bodies of animals to have a true unity and not to be merely machines or aggregates of substances. For since all plants may be no more than that, what necessity could there be for animals to be anything else? One cannot see, furthermore, how this opinion can be easily maintained by assuming that these souls are indivisible and indestructible. For what reply can one make about those worms[1] which are cut into two, each part of which moves as before? If one of the houses where some hundred thousand silkworms are being nurtured were to catch fire, what would become of these one hundred thousand indestructible souls? / Would they continue to G, p. 88
exist separated from all matter, like our souls? Likewise, what became of the souls of those millions of frogs which Moses killed, when he put a stop to that plague; and of that countless host of quail which the Israelites killed[2] in the desert, and of all the animals which perished in the Flood? There are yet other difficulties over the way in which these souls are found in every animal as it is conceived. Were they in the seed?[3] Were they indivisible and indestructible there? What therefore happens, when the seed is wasted without conception taking place? What happens with animals when the males do not approach the females during the whole of their lives?[4] It is enough to have indicated these problems.

[1] 'aux vers'.

[2] 'qui tuèrent les Israélites' (Gerhardt): corrected according to Le Roy (p. 157).

[3] 'in seminibus'.

[4] 'Quid ergo fit, cum irrita cadunt sine ullis conceptibus semina? Quid cum bruta mascula ad feminas non accedunt toto vitae suae tempore?'

It remains only to speak of the unity imparted by the rational soul. It is agreed that it possesses a true and perfect unity and a true self, and that in a way it conveys this unity and self to that whole made up of soul and body that is called man. For although this whole is not indestructible, since it perishes when the soul is separated from the body, it is indivisible in the sense that one cannot conceive of half a man. But in considering the body separately, as our soul does not convey to it its 'indestructibility', one does not see either that strictly speaking it conveys to it neither its true unity nor its indivisibility. For although it is united to our soul, its parts are nevertheless no more than mechanically joined together, and thus it is not a single bodily substance but an aggregate of many bodily substances. It is no less true that it is as divisible as every other body in nature. Now, divisibility is contrary to true unity. So it has no true unity. But it has, you say, through our soul. That is to say, it belongs to a soul that is a genuine unity, which is not a unity intrinsic to the body but like that of provinces, which, being governed by a single king, make up only one kingdom.

However, although it is true that genuine unity exists only in intelligent natures, every one of which can say 'myself', there are nevertheless various degrees in this improper unity which befits the body. For although there is no body considered separately which is not many substances, one is nevertheless right to ascribe more unity to those bodies whose parts conspire towards one and the same end, like a
G, p. 89 house or watch, / than to those whose parts are merely near one another, like a heap of stones or a bag of pistoles; and it is properly these latter ones alone that must be called 'aggregates by accident'. Almost all bodies of nature which we call 'one', like a heap of gold, a star, a planet, are of the first kind, but that appears nowhere more clearly than in organic bodies, that is to say animals and plants, without any need on that account to bestow souls upon them. (And it appears to me even that you do not bestow them upon

plants.) For why may a horse or an orange tree not be considered each as a complete and finished work, as well as a church or a watch? What does it matter that they are called one (with that unity which, so as to be fitting to the body, has necessarily had to be different from that which befits spiritual nature) by virtue of the fact that their parts are no more than mechanically joined together and are therefore machines? Is it not the greatest perfection that they can have to be such admirable machines that there is only one omnipotent God who can have made them? Our body, considered alone, is therefore one in this way. And the connexion which it has with[1] an intelligent nature which is joined to it and directs it can still add some unity to it, but not of that kind of unity befitting spiritual natures.

I grant you, Sir, that I have no ideas about the rules of movement clear and distinct enough to make a good judgement of the problem you have put to the Cartesians.[2] The man who answered you is the abbé de Catelan, who is an intelligent man and a good geometer.[3] Since I left Paris, I have not kept in touch with the philosophers there. But since you are determined to reply to this abbé and since he will perhaps want to defend his views, there are grounds for hoping that these various writings will cast so much light on this problem that one will know what to believe.

I am more than grateful to you, Sir, for expressing a desire to know about my health. Very well, thank God, for my age. I have only had a rather bad cold at the beginning of this winter.[4] I am very glad that you are thinking of completing work on your arithmetical machine.[5] It would have been a pity if such a fine invention had been lost. / But[6] I should very much hope that the idea about which G, p. 90

[1] The preposition is omitted in Gerhardt, and restored in accordance with Le Roy (p. 158).

[2] Cf. pp. 97–100. [3] Cf. p. 100.

[4] The end of this sentence is omitted in Gerhardt, and has been restored from Le Roy (p. 158).

[5] Cf. p. 100, n. 2.

[6] At this point Leibniz noted on the MS: 'Omit what follows'.

you wrote a word to the Prince, who has so much affection for you, might produce results. For there is nothing on which a wise man must work with more care and less delay than on what concerns his salvation.

I am, etc.

XX

Leibniz to Arnauld

Göttingen, 30 April 1687

Since your letters are of great benefit to me and consequences of your perfect generosity, I have no right to ask for them, and consequently your replies are never too late. However much pleasure and help they give me, I think of what you owe to the public good, and that silences my desires. Your thoughts are always instructive to me, and I shall take the liberty of going through them in order.

I do not think that there is any difficulty in what I said about how 'the soul expresses more distinctly (all other things being equal[1]) what pertains to its body',[2] since it expresses the whole universe in a certain sense, and in particular according to the connexion between other bodies and its own, for it cannot equally well express everything; otherwise there would be no distinction between souls. But it does not for that reason follow that it must have a perfect apperception of what is going on in the parts of its body, since there are degrees of connexion between those very parts, which do not all receive equal expression, any more than do external things. The remoteness of some is made up for by smallness or other obstacles in others; and Thales[3] sees the stars but not the ditch before his feet.

The nerves and membranes are more sensitive parts for us than others, and it is perhaps only through them that we

[1] 'cæteris paribus'. [2] Cf. p. 105.

[3] Greek philosopher and scientist (c. 625–c. 547 B.C.). The reference is to Plato, *Theaetetus*, 174: 'I will illustrate my meaning by the jest of the witty maid-servant, who saw Thales tumbling into a well, and said of him, that he was so eager to know what was going on in heaven, that he could not see what was before his feet' (B. Jowett ed., *The Dialogues of Plato*, 4th ed., Oxford, Clarendon Press, 1953, 4 vols., vol. III, p. 214).

G, p. 91 apperceive / others, which apparently occurs because the movements of the nerves or of the liquids belonging to them imitate impressions better and confuse them less; now, the more distinct expressions of the soul correspond to the more distinct expressions of the body. It is not that the nerves act upon the soul, metaphysically speaking, but that one represents the state of the other by a spontaneous relationship.[1] One must also consider that too many things occur in our body for them all to be separately perceived, but from them one feels a certain effect to which one is accustomed, and one cannot distinguish what goes to make it up because of the great number, as when hearing afar off the sound of the sea, one does not distinguish the effect of each wave, although each wave affects our ears. But when a conspicuous change occurs in our body, we notice it quickly and more clearly than the changes from outside, which are not accompanied by a noteworthy change in our organs.

I do not say that the soul is aware of the prick before it feels pain, except as it is aware of or confusedly expresses everything according to the principles already established; but this expression, albeit obscure and confused, which the soul possesses of the future in advance, is the true cause of what will happen to it and of the clearer perception that it will have afterwards when the obscurity will have developed, since the future state is a consequence of the preceding one.

I had said that God created the universe in such a manner that body and soul, each acting according to its laws, may harmonize in phenomena. You consider that 'that fits in with the hypothesis of occasional causes'.[2] If that were so, I should not be sorry, and I am always very glad to find people who agree with me. But I see your reason; it is that you imagine that I shall not say that a body can move itself. Therefore, since the soul is not the real cause of the movement of the arm, nor the body either, it will be God. But I hold a different view; I maintain that what is real in the state that is called motion comes as much from bodily

[1] 'spontanea relatione'. [2] Cf. pp. 105–6.

substance as thought and will come from the mind. Everything occurs in every substance as a consequence of the first state which God bestowed upon it when he created it, and, extraordinary concourse excepted, his ordinary concourse consists only of preserving the substance itself in conformity with / its preceding state and the changes that it bears. G, p. 92
However, it is well said that one body pushes another, that is to say that a body never begins to have a certain tendency except when another touching it loses a proportionate tendency according to the constant laws which we observe in phenomena. And indeed, since movements are real phenomena rather than entities, a movement as a phenomenon is in my mind the immediate consequence or effect of another phenomenon, and likewise in the minds of others, but the state of a substance is not the immediate consequence of the state of another particular substance.

I do not dare to assert that plants have no soul or life or substantial form;[1] for although a part of the planted or grafted tree can produce a tree of the same species, it is possible that there is a seminal part which already contains a new vegetable, as there are perhaps already living animals, albeit very small, in the seed of animals, which can be transformed into a similar animal. I do not therefore yet dare to assert that animals alone are alive and endowed with a substantial form. And perhaps there is an infinite number of degrees in the forms of bodily substances.

You say, Sir, that those who support the hypothesis of occasional causes, saying 'that my will is the occasional cause and God the real cause of the movement of my arm, do not claim that God does that in time through a new act of will, which he exercises each time I wish to raise my arm; but by that single act of the eternal will, whereby he has wished to do everything which he has foreseen that it would be necessary to do'.[2] To this I answer that one may say for the same reason that even miracles do not occur through a new act of will of God, since they are in keeping with his general

[1] Cf. p. 107.

[2] Cf. pp. 105–6.

design, and I have already remarked in earlier letters that every act of will of God contains all the others, but with some order of priority. Indeed, if I understand clearly the opinions of the authors of occasional causes, they introduce a miracle which is no less one for being continual. For it seems to me that the concept of the miracle does not consist of rarity. I shall be told that God acts in this respect only according to a general rule and consequently without miracles, but I do not concede this inference, and I believe that God can make general rules for himself in respect even of miracles; for
G, p. 93 example, / if God had decided to bestow his grace immediately or to carry out another action of that kind every time that a certain circumstance occurred, this action would nevertheless be a miracle, albeit an ordinary one. I admit that the authors of occasional causes may be able to give another definition of the term, but it seems that according to usage a miracle differs intrinsically and through the substance of the act from a common action, and not by an external accident of frequent repetition, and that strictly speaking God performs a miracle whenever he does something that exceeds the forces which he has given to creatures and maintains in them. For instance, if God were to cause a body which had been set in a circular movement, by means of a sling, to continue to move freely in a circle when it had been released from the sling, without being impelled or checked by anything at all, that would be a miracle, for according to the laws of nature it should continue along a straight line at a tangent; and if God were to decree that that should always occur, he would be performing natural miracles, since this movement is not susceptible of a similar explanation. Likewise one must say that if the continuation of the movement exceeds the force of the bodies, it must be said, according to the accepted concept, that the continuation of the movement is a true miracle, whereas I believe that bodily substance has the force to continue its changes according to the laws that God has placed in its nature and maintains there. And in order to make myself better under-

stood, I believe that the actions of minds effect no change at all in the nature of bodies, nor bodies in that of minds, and even that God changes nothing on their occasion, except when he performs a miracle; and in my opinion things are so prearranged that a mind never effectively desires anything except when the body is prepared to do it by virtue of its own laws and forces; whereas according to the authors of occasional causes God changes the laws regarding bodies on the occasion of the soul and *vice versa*. There lies the essential difference in our views. Thus one must not be worried, in my opinion, as to how the soul can impart some movement or new determination to animal spirits, since in fact it never does; more especially as mind and body are incommensurable and nothing can determine what degree of speed a mind will impart to a body, not even what degree of speed God would wish to impart to the body on the occasion of the mind, when obeying a fixed law; the same problem is to be found with / the hypothesis of occasional G, p. 94
causes as with the hypothesis of a real influence of the soul upon the body and *vice versa*, in that no connexion or basis for any rule can be seen. And if one wishes to say, as apparently M. Descartes intends, that the soul, or God on its occasion, changes only the direction or determination of the movement and not the force which is in the bodies, because it does not appear probable that God is constantly transgressing, on the occasion of every[1] act of will by minds, the general law of nature that the same amount of force must continue to exist, I reply that it will still be quite difficult to explain what connexion there can be between the soul's thoughts and the paths or angles of the body's direction, and furthermore that there is still in nature another general law which M. Descartes did not perceive and which is no less important, namely that the same total direction[2] or determination must always continue to exist. For I find that if

[1] This word is restored from Le Roy (p. 162), being illegible (according to Gerhardt) in Leibniz's draft.

[2] Cf. Mon. par. 80.

one were to take any straight line, for example from east to west, through a given point, and were to calculate all the directions of all the bodies in the world to the extent that they go forward or back in lines parallel to this line, the difference between the sums of the quantities of all the eastern and all the western directions would always be the same, both between certain particular bodies, if one assumes that they alone now have a relationship with one another, and in regard to the whole universe where the difference is always nil, since everything is perfectly balanced and the eastern and western directions perfectly equal in the universe; if God transgresses this rule, it is a miracle.

It is therefore infinitely more reasonable and worthy of God to assume that he first created the machine of the world in such a way that, without constantly violating the two great laws of nature, the law of force and the law of direction, and rather by following them perfectly, except for miracles, it happens precisely that the springs of bodies are ready to work by themselves, as necessary, at the moment when the soul conceives a suitable act of will or thought that it too has conceived only in accordance with the preceding states of the bodies, and that thus the union of the soul with the machine of the body and the parts which it contains, and the action of one upon the other, consist only of that
G, p. 95 concomitance which betokens the admirable wisdom / of the creator much better than any other hypothesis. One cannot disagree that this hypothesis is at least possible and that God is a sufficiently great workman to be able to carry it out; thereafter one will easily conclude that this hypothesis is the most probable since it is the simplest and the most intelligible, and at once demolishes all the problems, to say nothing of the criminal actions in which it seems more reasonable to invoke God's assistance merely in[1] the preservation of created forces.

Finally, to use a comparison, I shall say that regarding this

[1] This preposition is missing in Gerhardt and has been restored from Le Roy (p. 163).

concomitance which I uphold, it is like many different bands of musicians or choirs, playing their parts separately, and so placed that they cannot see or even hear each other, but who can nevertheless harmonize perfectly, by each one merely following his notes, with the effect that the listener finds them all in magnificent harmony, which is much more surprising than if there were a connexion between them. It might even be possible for someone alongside one of these two choirs to judge from the one what the other is doing, and to acquire such a habit from it (particularly if it were assumed that he could hear his own without seeing it and could see the other without hearing it) that, with his imagination making good the deficiency, he might no longer think of the choir in which he is but of the other, or might consider his own merely to be an echo of the other, attributing to the one in which he is only certain interludes in which various rules of harmony by which he is judging the other do not appear; or attributing to his own choir certain movements that must be made on his side according to certain arrangements that he thinks are being imitated by the others, because of the connexion with that which he finds in the continuation[1] of the melody, not knowing that those on the other side are still performing in that respect something corresponding, in accordance with their own arrangements.

However, I do not at all object if minds are called occasional causes, and even real causes in a sense, of certain bodily movements; for in the matter of divine decisions, what God has foreseen and preordained for minds has been an occasion for his first regulating bodies in such a way that they should conspire between themselves according to the laws and forces that he might give them; and as the state of one is an unfailing consequence, albeit often contingent and even free, it can be said that God arranges a real connexion by virtue of that general concept of substances which implies perfect inter-related expression between / all of them, G, p. 96

[1] 'sorte' (Gerhardt): corrected according to Le Roy ('suite'—p. 163).

though this connexion is not immediate, being based only on what God has wrought in creating them.

If my view that substance requires a true unity were based only on a definition that I might have coined contrary to common usage, 'it would be only a quibble over words',[1] but apart from the fact that the common run of philosophers[2] have taken this term more or less in the same way, distinguishing between a unity of itself and a unity by accident, substantial form and accidental form, composite substances perfect and imperfect, natural and artificial,[3] I consider matters at a much more general level, and abandoning the use of terms, I believe that *where there are only entities through aggregation, there will not even be real entities*; for every entity through aggregation presupposes entities endowed with a true unity, because it obtains its reality from nowhere but that of its constituents, so that it will have no reality at all if each constituent entity is still an entity through aggregation; or one must yet seek another basis to its reality, which in this way, if one must constantly go on searching, can never be found. I grant you, Sir, that in the whole of corporeal nature there are only machines (which are often animated), but I do not grant that 'there are only aggregates of substances',[4] and if there are aggregates of substances, there must also be genuine substances from which all the aggregates result. One must therefore necessarily arrive either at mathematical points from which certain authors make up extension, or at Epicurus's and M. Cordemoy's atoms (which you, like me, dismiss), or else one must acknowledge that no reality can be found in bodies, or finally

[1] Cf. p. 107.

[2] The reference is to the Scholastics. This use of the phrase 'les philosophes ordinaires' may be compared with a similar use of the term 'vulgus' by Descartes and Spinoza: e.g. Descartes, *Principia Philosophiae*, iv. 202, and Spinoza's phrase 'vulgus philosophicum', Friedmann, p. 62.

[3] 'distinguendo unum per se et unum per accidens, formamque substantialem et accidentalem, mixta imperfecta et perfecta, naturalia et artificialia'.

[4] Cf. p. 108.

one must recognize certain substances in them that possess a true unity. I have already said in another letter that the composite of the Grand-Duke's and the Grand-Mogul's diamonds can be called a pair of diamonds,[1] but it is merely an entity of reason, and even if one of them is brought close to the other, it will be an entity of the imagination or perception, that is to say a phenomenon; for contiguity, common movement, concurrence towards one and the same end make no difference to substantial unity. To be sure, there is sometimes more, sometimes less basis for assuming many things to be forming a single thing, according to the degree of connexion between these things, but that is useful only for summarizing our thoughts and representing phenomena.

It seems too that what constitutes the essence of an entity through aggregation / is only a state of being of its con- G, p. 97
stituent entities; for example, what constitutes the essence of an army is only a state of being of the constituent men. This state of being therefore presupposes a substance whose essence is not a state[2] of being of another[3] substance. Every machine thus presupposes some substance in the constituent parts, and there is no multiplicity without true units. To be brief, I hold as axiomatic the identical proposition which varies only in emphasis: that what is not truly *one* entity is not truly one *entity* either. It has always been thought that 'one' and 'entity' are interchangeable. Entity is one thing, entities another; but the plural presupposes the singular, and where there is no entity, still less will there be many entities. What clearer statement can be made? I have therefore thought that I should be permitted to differentiate between entities through aggregation and substances, since the unity of these entities exists only in our mind, which bases itself upon the connexions or modes of genuine substances. If a machine is a substance, a circle of men holding

[1] Cf. p. 94.

[2] 'matière' (Gerhardt): an obvious error, corrected according to Le Roy (p. 165).

[3] 'another' is added from Le Roy (p. 165).

hands will be too, and then an army, and finally every multiplicity of substances.

I do not say that there is nothing substantial or nothing except appearances in things devoid of true unity, for I grant that they always have as much reality or substantiality as there is true unity in what goes into their composition.

You object, Sir, that it may be of the essence of matter to be devoid of true unity; but it will then be of the essence of matter to be a phenomenon, lacking all reality as would a coherent dream, for phenomena themselves like the rainbow or a heap of stones would be wholly imaginary if they were not composed of entities possessing true unity.

You say you do not see what leads me to admit these substantial forms[1] or rather these bodily substances endowed with true unity; but it is because I cannot conceive of any reality without true unity. And to my way of thinking the concept of an individual substance embraces consequences incompatible with an entity through aggregation; I conceive of properties in substance which cannot be explained
G, p. 98 by extension, shape and motion, apart from the fact that there is no fixed, precise shape / in bodies because of the actual subdivision of the continuum to infinity; and that motion, in so far as it is only a modification of extension and change of surroundings, embraces something imaginary; with the effect that one cannot decide to what subject it belongs among those that change, without recourse to the force which is the cause of the motion, and which exists in bodily substance. I confess that there is no need to mention these substances and qualities to explain particular phenomena; but there is no need either to study God's concourse, the composition of the continuum, the plenum and a thousand other things. One can explain, mechanically (I confess), the particularities of nature, but only after acknowledging or assuming the principles of mechanics itself, which

[1] 'termes' (Gerhardt): corrected according to Le Roy (p. 165).

one cannot establish *a priori* save by metaphysical arguments, and even the problems concerning the composition of the continuum[1] will never be resolved so long as extension is thought to constitute the substance of bodies, and we are entangled in our own fantasies.

I also believe that to wish to restrict genuine unity or substance to man almost without exception is to be as limited in metaphysics as were in physics those who enclosed the world in a ball.[2] And since genuine substances are as many expressions of the whole universe considered in a certain sense and as many duplications of the works of God, it is in keeping with the greatness and beauty of God's works, since these substances do not impede one another from making as many[3] in this universe as possible and as higher reasons allow. The assumption of pure extension destroys the whole of this wonderful variety; mass alone (if it were possible to conceive of it) is as much inferior to a substance which is perceptive and a representation of the whole universe according to its point of view and the impressions (or rather relationships) which its body receives mediately or immediately from all others, as a corpse is inferior to an animal or rather as a machine is to a man. It is indeed in this way that the lineaments of the future are formed in advance and that the indications of the past are preserved for ever in each thing, and that cause and effect adapt to one another[4] precisely down to the detail of the smallest circumstance, although every effect depends upon an infinite number of causes and every cause has an infinite number of effects; which it would be impossible to obtain if the essence of matter consisted of a certain / shape, move- G, p. 99
ment, or modified version of extension which was determined.

[1] 'de compositione continui'.

[2] The reference is perhaps to Parmenides, the founder of the Eleatic school of philosophy. Cf. Parmenides, fragt. 8: *The Pre-Socratic Philosophers*, by G. S. Kirk and J. E. Raven (Cambridge, 1957), p. 276.

[3] i.e. substances.

[4] 's'entrepriment' (Gerhardt): corrected according to Le Roy ('s'entreprêtent'—p. 166).

Furthermore, in nature there is none; everything is strictly indefinite where extension is concerned, and what extension we ascribe to bodies is merely phenomena and abstractions; which shows how much one is mistaken in these matters because of not giving them the thought that is so necessary for recognizing true principles and for forming an accurate idea of the universe. And it seems to me that there is as much harm in not sharing this very reasonable notion as in not recognizing the greatness of the world, the infinite subdivision and mechanical explanations of nature. One is as much mistaken in imagining extension as a basic concept without imagining the true concept of substance and action, as one was mistaken in former days in being content to consider substantial forms in general, without going into the details of modified forms of extension.

The multiplicity of souls (to which I do not always on that account attribute pleasure or pain) must not trouble us any more than the multiplicity of the Gassendists' atoms,[1] which are as indestructible as these souls. On the contrary, it is a perfection of nature to have many souls, since a soul or an animate substance is infinitely more perfect than an atom, which is without variety or subdivision; whereas each animate thing contains a world of diversities within a genuine unity. Now, experience favours this multiplicity of animate things. One finds that there is a prodigious quantity of animals in a drop of water permeated with pepper;[2] and one can kill millions of them in an instant, and both the Egyptians' frogs and the Israelites' quail that you mention, Sir,[3] do not approach them in numbers. Now, if these animals have souls, one must say of their souls what one can probably say of the animals themselves, that they have already been alive since the creation of the world and will

[1] Gassendi (1592–1655), a French philosopher, had championed Epicurean atomism.

[2] Pepper-water was used by Leeuwenhoek in his observations of protozoa and bacteria (cf. p. 89, n. 1).

[3] Cf. p. 109.

be until its end, and that, as the act of generation is apparently only a change consisting of growth, death will only be a change of diminution, causing each animal to withdraw into the recesses of a world of[1] tiny creatures where it has more limited perceptions, until the order summons it perhaps to return upon the stage. The Ancients were mistaken in introducing the transmigrations of souls instead of the transformations of one and the same animal keeping always the same soul: they have put metempsychoses instead of transformations.[2] But minds are not / subject to G, p. 100
these revolutions, or else these bodily revolutions must be of use to the divine arrangement regarding minds. God creates them when it is time and detaches them from the body (at least from the coarse body) by death, since they must always keep their moral qualities and their capacity for recollection so as to be perpetual citizens of that entirely perfect and universal commonwealth of which God is the monarch, which cannot lose any of its members, and whose laws are superior to the laws of bodies. I admit that the body apart, without the soul, has only a unity of aggregation, but the reality remaining to it comes from its constituent parts which retain their substantial unity because of the living bodies which are included in them without number.

However, although it is possible that a soul has a body made up of parts animated by separate souls, the soul or form of the whole is not on that account made up of the souls or forms of the parts. As regards an insect which one cuts in two, the two parts do not necessarily have to remain animate, although a certain movement remains in them. At least the soul of the whole insect will remain only in one part; and as in the formation and growth of the insect the soul was there from the beginning in a certain part that was already alive, it will also remain after the destruction of the insect in a certain part that is still alive, which will always be as small as is necessary to be sheltered

[1] 'et de' (Gerhardt): corrected according to Le Roy (p. 167).
[2] 'metempsychoses pro metaschematismis'.

from whoever tears or scatters the body of this insect, without there being any need to conjure up, as do the Jews, a little bone of irreducible hardness in which the soul takes refuge.[1]

I agree that there are degrees of accidental unity, that an ordered society has more unity than a chaotic mob, and that an organic body or a machine has more unity than a society; that is to say, it is more appropriate to conceive of them as a single thing, because there are more connexions between the constituents; but then all these unities are made complete only by thoughts and appearances, like colours and other phenomena, which one nevertheless calls real. The tangibility of a heap of stones or of a marble block does not constitute a better proof than the visibility of a rainbow does of its substantial reality, and since nothing is so solid as not to have a degree of fluidity, perhaps this marble block is merely a heap of an infinite number of living bodies
G, p. 101 or / like a lake full of fish, though these animals are ordinarily visible only in half-rotten bodies; it can therefore be said of these composite bodies and similar things what Democritus said very well about them, 'they exist by opinion, by convention—*νόμῳ*.'[2] And Plato holds the same view about what is purely material. Our mind notices or conceives of certain genuine substances which have various modes; these modes embrace relationships with other substances, from which the mind takes the opportunity to link them together in thought and to enter into the account one name for all these things together, which makes for convenience in reasoning. But one must not let oneself be deceived and make of them so many substances or truly real entities; that is only for those who stop at appearances, or

[1] Prenant (p. 427, n. 791b) states that this is a doctrine of the Cabbala, which Leibniz could have gathered from the Latin translation of Knorr von Rosenroth (*Kabbala denudata*, 1677–84).

[2] 'esse opinione, lege, *νόμῳ*'. Leibniz may have in mind Democritus, fragt. 9: 'By convention (*νόμῳ*) are sweet and bitter, hot and cold, by convention is colour; in truth are atoms and the void' (trans. Kirk and Raven, op. cit., p. 422).

those who make realities out of all the abstractions of the mind, and who conceive of number, time, place, movement, shape, perceptible qualities as so many separate entities. Whereas I maintain that one cannot find a better way of restoring the prestige of philosophy and transforming it into something precise than by distinguishing the only substances or complete entities, endowed with genuine unity, with their different states which follow one another; all the rest is merely phenomena, abstractions or relationships.

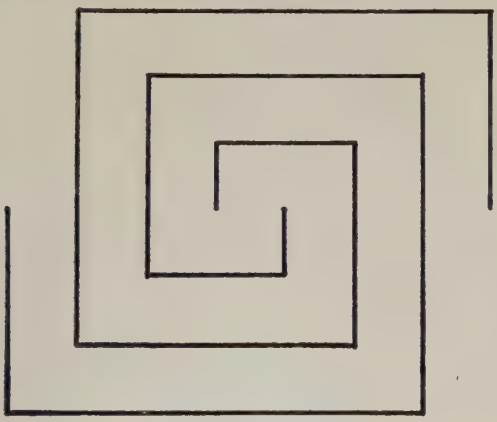

FIG. 2

One will never find any fixed principle for making a genuine substance from many entities by aggregation; for example, if those parts which conspire towards one and the same end are more fitted for composing a genuine substance than those which are contiguous, all the officers of the Dutch East Indies Company will form a real substance, much better than a heap of stones. But what is the common end, if not a likeness, or else an order of active and passive relationships which our mind perceives in different things? If one wishes to prefer the unity of contiguity, one will encounter other difficulties. Solid bodies perhaps have their

parts joined only by the pressure of the surrounding bodies and of themselves, and in their substance they do not have any more unity than a heap of sand: sand without lime.[1] Why will many rings, interwoven so as to make a chain, be more likely to make up a genuine substance than if they had openings to allow them to separate one from another? It is possible that not a single one of the parts of the chain touches or even clasps another, and that yet they are so interwoven that unless one goes about it in a certain way one cannot
G, p. 102 separate them, / as in Fig. 2. Shall one say in this case that the substance of the composite of these things is as it were in suspense and depends on the future skill of the man who will wish to separate them? Fictions of the mind on all sides, and as long as one does not distinguish what is truly a complete entity or a substance one will have nothing on which to settle, and that is the only way to establish real, solid principles. By way of conclusion, nothing must be asserted without a basis for it; it is therefore up to those who create entities and substances without genuine unity to prove that there is more reality than what we have just stated; and I await the concept of a substance or entity that can contain all these things, after which both parts and perhaps also dreams may one day aspire to it, unless very precise limits are assigned to this citizens' right which one wishes to ascribe to entities formed by aggregation.

I have gone on at length about these topics so that you can form an opinion not only of my views but also of the reasons which have forced me to follow them; these I submit to your judgement, which I know to be fair and exact. I submit to it also what you will have discovered in the *Nouvelles de la République des lettres*, by way of reply to the abbé Catelan, whom I consider an able man, from what you say of him;[2] but what he has written against M. Huygens and me shows that he is a little hasty. We shall see how he will act now.

[1] 'arena sine calce'.

[2] Cf. p. 111.

I am delighted to know that you are well, and wish you continued health with all the zeal and passion that makes me your etc.

P.S. I am keeping for another occasion some other topics that you touched upon in your letter.

G, p. 104

XXI

Leibniz to Arnauld

Hanover, 22 July/1 August 1687

I have been very happy to hear that His Supreme Highness the Landgrave Ernst has found you enjoying good health. I desire with all my heart that I shall often again hear similar news, and that the body feels as little the effect of your age as your mind, whose vigour is well enough known. I myself have perceived that, and I confess that I know no one at present from whom I anticipate a more solid and incisive, but also a more sincere opinion on my thoughts than from you.

I should not want to give you any more trouble; but since the subject of the most recent letters is one of the most important after those concerning religion and even has a close connexion with it, I confess that I should like to be able still to benefit from your learning and to hear at least your views on my latest elucidations. For if you find verisimilitude in them, that will bear me out; but if you still find fault, that will cause me to proceed warily and force me to examine the subject all over again one day.

Instead of M. de Catelan, it was the Reverend Father Malebranche who replied recently to my objection in the *Nouvelles de la République des lettres*.[1] He seems to acknowledge that some of the laws of nature or rules of movement that he had put forward may be hard to defend. But he thinks the reason to be that he based them on infinite hardness, which does not exist in nature; whereas I believe that, even if it did exist, these rules would still be impossible to defend. And it

[1] Cf. p. 128. Leibniz had replied to Catelan in the *Nouvelles de la République des lettres* of February 1687 (pp. 131–44); Malebranche's answer appeared in the following April (pp. 448–50).

is a weakness in his and M. Descartes's arguments that they have not considered that every statement about motion, inequality and elasticity must also be verified when one assumes that these things are infinite or infinitely small. In that case motion (infinitely small) / becomes rest, inequality G, p. 105
(infinitely small) becomes equality; and elasticity (infinitely rapid) is nothing else but extreme hardness; more or less as all the proofs of the ellipse undertaken by geometers are verified about a parabola when it is thought of as an ellipse whose other focal point is infinitely distant. And it is strange to see that almost all M. Descartes's rules of movement offend this principle, which I consider to be as infallible in physics as in geometry, because the author of the world acts as a perfect geometer. If I answer Father Malebranche,[1] it will be mainly in order to bring this principle to notice, for it is very useful and has scarcely yet been considered in its generality, to my knowledge.

But I am detaining you too long, and this matter is not worthy of your attention. I am etc.

[1] Leibniz in fact did, in the *Nouvelles de la République des lettres* of July 1687 (pp. 744–53), G iii. 51 ff. (Loemker, pp. 538 ff.).

XXII

Arnauld to Leibniz

28 August 1687

To start with, I must apologise to you for replying so late to your letter of 30th April. Since then I have had various illnesses and things to occupy me, and in addition I have a little trouble in setting my mind to such abstract matters. That is why I beg of you not to disapprove if I tell you very briefly what I think of the new points in your last letter.

1. I have no clear notion of what you mean by the word 'expression', when you say 'that our soul expresses more distinctly (all other things being equal[1]) what pertains to its body, since it is an expression even of the whole universe in a certain sense'.[2] For if by this 'expression' you mean some thought or item of knowledge, I cannot agree that my soul has more thought and knowledge of the movement of lymph in the lymphatic vessels than of the movement of Saturn's
G, p. 106 satellites. But if / what you call 'expression' is neither thought nor knowledge, I do not know what it is. And so that cannot be of any use to me for solving the problem which I had put to you, as to how my soul can communicate to itself a feeling of pain when I am pricked during my sleep, since for that it would have to know that I am pricked, whereas it possesses this knowledge only through the pain it feels.

2. About the following argument in the philosophy of occasional causes: 'My hand moves as soon as I will it to do so. Now, it is not my soul which is the real cause of this movement, nor is it my body. Therefore it is God';[3] you say that this assumes that a body cannot move itself, which is

[1] 'cæteris paribus.'

[2] Cf. p. 113.

[3] Cf. p. 114.

not your thought, and that you hold that what is real in the state called motion comes as much from bodily substance as thought and will come from the mind.

But it is this that seems to me very hard to understand, that a body without movement can impart movement to itself. And if that is admitted, one of the proofs of God, the necessity of a prime mover, is ruined.

Further, even if a body could impart movement to itself, that would not make my hand capable of moving whenever I willed it to do so. For since it is without consciousness, how could it know when I wanted it to move?

3. I have more to say about these indivisible and indestructible substantial forms[1] which you think must be conceded to exist in all animals and perhaps even in plants, because otherwise matter (which you imagine is not made up of atoms or of mathematical points, but is infinitely divisible) would not be a unity of itself[2] but only aggregated by accident.[3]

(1) I answered you that it is perhaps essential for matter, which is the most imperfect of all entities, to have no true and proper unity, as St. Augustine thought, and to be always many entities,[4] and not properly one entity;[5] and that that is no more incomprehensible than infinite divisibility of matter, which you allow.

You reply that that is impossible, because there cannot be many entities,[4] where there is not one entity.[5]

But how can you use this argument, which M. de Cordemoy might have thought to be true but which in your opinion must necessarily be / false, since apart from animate G, p. 107
bodies which do not compose the one hundred thousand thousandth part, all the others which in your opinion have no substantial forms must necessarily be many entities,[4] and not properly one entity?[5] It is not therefore impossible for many entities[4] to exist where there is properly not one entity.[5]

[1] Cf. p. 115. [2] 'unum per se'.
[3] 'aggregatum per accidens'. [4] 'plura entia'. [5] 'unum ens'.

(2) I do not see how your substantial forms can cope with this problem. For the attribute of the entity[1] that is called one,[2] considered as you consider it with metaphysical rigour, must be essential and intrinsic to what is called one entity.[3] Therefore if a particle of matter is not one entity,[3] but many entities,[4] I do not conceive how a substantial form (which, as it is really distinct from it, can only confer on it an extrinsic denomination) is capable of causing it to cease to be many entities[4] and to become one entity[3] through an intrinsic denomination. I understand clearly that it may be a reason for us to call it one entity,[3] if we do not take the word one[2] in this metaphysically strict sense. But there is no need of these substantial forms to give the name of *one* to an infinite number of inanimate bodies. For is it not good usage to say that the sun is *one*, that the earth we live on is *one*, etc.? It is not therefore clear that there is any need to admit these substantial forms in order to ascribe true unity to bodies which would not otherwise have it.

(3) You admit these substantial forms only in animate bodies.[5] Now, there is no animate body which is not organic, nor any organic body which is not many entities.[4] So, far from your substantial forms preventing the bodies to which they are joined being many entities,[4] the bodies must be many entities[4] in order to be joined to them.

(4) I have no clear notion of these substantial forms or souls of animals. You must look upon them as substances, since you call them substantial and say that only substances are genuinely real entities, amongst which you mainly place these substantial forms. Now, I am acquainted with only two kinds of substances, bodies and minds; and it is up to those who would claim that there are others to prove it to us,
G, p. 108 according to the maxim with which / you conclude this letter, 'that nothing must be asserted without a basis for it'.[6]

[1] 'ens'. [2] 'unum'. [3] 'unum ens'.
[4] 'plura entia'.
[5] Leibniz noted: 'I do not remember saying that'.
[6] Cf. p. 128.

Assuming, then, that these substantial forms are bodies or minds, if they are bodies they must have extension and consequently be divisible, and infinitely divisible: from which it follows that they are not one entity,[1] but many entities,[2] as well as the bodies which they animate, and that thus they will be very far from being able to confer true unity upon them. But if they are minds, their essence will be to think: for that is what I conceive of by the word 'mind'. Now, I find it hard to understand that an oyster thinks, a worm thinks. And furthermore, as you indicate in this letter that you are not sure that plants are devoid of soul, and life, and substantial form, you would have to be uncertain also whether plants do not think, since their substantial form, if they had any, not being a body because it would lack extension, should be a mind, that is to say a thinking substance.

(5) The indestructibility of these substantial forms or souls of animals seems to me even more indefensible. I had asked you what became of these animals' souls when they die or are killed; when for instance one burns caterpillars, what became of their souls. You reply 'that it remains in a small part that is still alive in the body of each caterpillar, and which will always be as small as is necessary to be sheltered from the action of the fire that tears or scatters the bodies of these caterpillars'.[3] And that is what causes you to say 'that the Ancients were mistaken in introducing the transmigrations of souls instead of the transformations of one and the same animal keeping always the same soul'.[4] Nothing more subtle could be imagined for solving this problem. But consider carefully, Sir, what I am going to say to you. When a silkworm butterfly lays its eggs, each of those eggs, according to you, has a silkworm soul, whence it comes about that five or six months later little silkworms emerge from the eggs. Now, if a hundred silkworms had been burned, there would also be, according to you, a hundred

[1] 'unum ens'.
[2] 'plura entia'.
[3] pp. 125–6.
[4] Cf. p. 125.

silkworm souls in as many small particles of these ashes: but on the one hand, I do not know anyone whom you will be able to persuade that each silkworm, after being burned, has remained the same animal keeping the same soul attached to a small particle of ash which was formerly a
G, p. 109 small part of its body: and on the other hand, / were that the case, why would silkworms not be born from these ash particles, just as they are born from eggs?

(6) But this problem seems greater in animals, whom one knows with more assurance to be born always from the union of the two sexes. I ask, for instance, what became of the soul of the ram which Abraham sacrificed instead of Isaac and subsequently burned. You will not say that it has passed into the foetus of another ram. For that would be the metempsychosis of the Ancients, which you reject. But your answer will be that it has remained in a particle of the body of that ram which was reduced to ashes, and that thus it has been only 'the transformation of the same animal, keeping always the same soul'. That might be said with some appearance of probability in your hypothesis of the substantial forms of a caterpillar which becomes a butterfly, because the butterfly is an organic body as well as the caterpillar, and because it is thus an animal which can be considered to be the same as the caterpillar, because it keeps many parts of the caterpillar without any change, while the others have changed only in form. But this part of the ram reduced to ashes into which the ram's soul would have withdrawn is not organic and cannot be thought to be an animal, and thus with the ram's soul being attached to it it does not form an animal, still less a ram, as the soul of a ram should. What then will happen to the soul of this ram in this ash? For it cannot detach itself and go elsewhere: that would be a soul transmigration, which you reject. And it is the same for an infinite number of other souls which would not form animals, since they are attached to inorganic parts of matter, and which one cannot imagine being capable of being animals according to the laws established in nature.

This infinite number of souls attached to inanimate bodies will therefore be an infinite number of monstrosities.

I read not long ago in the *Nouvelles de la République des lettres* of June,[1] what answer the abbé Catelan made to your objection.[2] His remarks there seem very clear to me. But perhaps he has not grasped your meaning very well. So I look forward to your reply.

I am etc.

[1] pp. 577–90. [2] Cf. p. 128.

XXIII

G, p. 110

Arnauld to the Landgrave

31 August 1687

Here, my Lord, is the reply to M. Leibniz's last letter which was sent to me by Your Supreme Highness as long ago as last April, but I have not been able to turn my mind earlier to replying to it. I beg you to put the address upon it, because I do not know his titles. If Your Highness wishes to read through it, he will see that M. Leibniz has very curious opinions about physics that seem to me scarcely defensible. But I have tried to tell him my thoughts on the subject in a way that might not wound him. It would be preferable if he gave up, at least for a time, this sort of speculation, and applied himself to the greatest business he can have, the choice of the true religion, in accordance with what he wrote about it to Your Highness some years ago. It is very much to be feared that death will catch him unprepared unless he has taken a decision that is of such importance for his salvation.

M. Nicole's book against the new system of the Church of M. Jurieu[1] has finished printing. We are expecting copies from Paris in five or six days. We shall send some to Your Highness by the Cologne carriages, with some other books that you will be very glad to see.

[1] *De l'unité de l'Eglise, ou Réfutation du nouveau système de M. Jurieu.*

XXIV

The Landgrave to Leibniz

11 September 1687[1]

He is quite right to say that,[2] for even if there were thousands amongst the Protestants who do not know left from right, who can in comparison with scholars be thought no better than animals, and who adhere to heresy only in the material sense,[3] that can certainly not be said of you who are so learned and upon whom, if there were never anyone else but me alone, every possible effort has been exerted to / bring you out of the schism and to point out to G, p. 111
you what there is in short to point out. Do you indeed believe (to cite only one point from a thousand) that Christ established his Church in such a way that what one thinks is white the other thinks black, and that for the ecclesiastical ministry he established it in such a particular, contradictory way that we and the Protestants are at odds and hold different beliefs? For example, we consider all your ministers to be lay usurpers of the ministry, and I do not know what you may believe of ours, who are so opposed to yours on this point. Oh my dear M. Leibniz, do not lose the time of grace in this way, 'and today if you have heard the voice of the

[1] Date supplied by Le Roy (p. 177) from the Academy edition, A i. 4, 444.

[2] This is a covering note to the previous letter from Arnauld.

[3] The Landgrave has in mind the distinction between material and formal heresy. In the former type, a heresy is adhered to involuntarily—e.g. because of excusable ignorance, or the imperfect apprehension and comprehension of dogmas. If, however, the will freely inclines the intellect to adhere to heretical doctrines—e.g. from the motive of intellectual pride—and if the doctrines are pertinaciously adhered to, then the heresy is 'formal' (*Catholic Encyclopaedia*, vol. vii, p. 256, s.v. 'Heresy').

Lord, harden not your heart'.[1] Christ and Belial do not agree with one another any more than Catholics and Protestants, and I cannot set any hopes on your salvation, if you do not become a Catholic.

[1] 'et hodie si vocem Domini audieritis, nolite obdurare corda vestra'.

XXV

Leibniz to the Landgrave[1] G, p. 129

On the subject of religion (since you touch that chord) there are people whom I know (for I am not speaking about myself) who are not far removed from the views of the Roman Catholic Church, who find the definitions of the Council of Trent quite reasonable and in keeping with Holy Scripture and the Holy Fathers, who consider the system of Roman theology more coherent than that of the Protestants and who admit that / dogma would not hold them back; G, p. 130 but they are held back,[2] in the first place, by certain very great and unduly common abuses of practice which they see to be tolerated in the Roman Catholic communion, especially in matters of worship; they fear they will be obliged to approve them or at least not to dare to criticize them; they are afraid of thereby scandalizing those who would consider them as without a conscience, and whom their example, albeit misunderstood, would conduce to impiety; they even doubt whether one can live in communion with people who carry on certain intolerable practices; and they consider that in these circumstances it is more excusable not to leave a faith than to enter one. In the second place, even if this obstacle did not exist, they find themselves held back by the anathematisms of the Council of Trent, they find it difficult to endorse these condemnations which seem to them excessively rigid and unnecessary, they think that that is not in the spirit of charity and that it creates or fosters a schism.

[1] This undated draft letter was not actually sent to the Landgrave. Le Roy's placing has been followed, the more so as Gerhardt himself seems to advise it (p. 129 n.). Gerhardt states that the letter is to Arnauld; it is, however, a reply both to Arnauld and to the Landgrave, and Le Roy and other editors (cf. Prenant, pp. 235, 439) state that it is to the Landgrave.

[2] 'ils ont arrêtés' (Gerhardt): corrected according to Le Roy (p. 178).

Yet these people believe themselves genuinely Catholic, like those who have been unjustly excommunicated, 'clave errante', for they uphold the dogmas of the Catholic Church, they furthermore desire external communion which others impede or refuse them.

A famous theologian, a Roman Catholic, fortified with the approval of many others, has suggested an expedient, believing that a Protestant, held back only by the anathematisms and even by certain definitions of the Council of Trent, and doubting whether this Council was truly œcumenical, but ready to defer to a council that was, and who consequently would accept so completely the first principles of the Catholic Church that his error would not be one of principle[1] but only of fact, such a man, I repeat, might be received into the faith without any mention being made of the Council of Trent, since for that matter this Council has not yet been accepted everywhere, since Pope Pius IV's profession of faith is made only for ecclesiastics or teachers, and since I do not think that the Council of Trent has entered into the profession of doctrine of all who have been admitted to the faith in France. But one doubts whether this expedient will be approved.

[1] 'de droit'.

XXVI

Leibniz to Arnauld

Hanover, 9 October 1687

Since I shall always set great store by your judgement when you can find out what is the matter in question, I want to make an effort here to present the points of view which I consider important and almost beyond doubt, so that they appear to you, if not as certain, as at least defensible. For it does not seem to me hard to answer the doubts which you still have and which, in my opinion, arise only because a person who has prepossessions and who is distracted in addition, however able he may be, has great trouble at first in understanding a new idea on a matter detached from the senses, where forms, models and imaginations cannot help us.

I had said that since the soul expresses naturally the whole universe in a certain sense, and according to the relationship which other bodies have with its own, and since in consequence it expresses in a more direct way what pertains to the parts of its body, it must, by virtue of the laws of the relationship which are essential to it, particularly express certain extraordinary movements of the parts / of its body; G, p. 112
which occurs when it feel spain from it. To this you reply that you have no clear notion of what I mean by the word 'expression'; if by that I mean a thought, you do not agree that the soul has more thought and knowledge of the movement of lymph in the lymphatic vessels than of Saturn's satellites; but if I mean something else, you do not know, you say, what it is, and consequently (supposing that I cannot explain it distinctly) this term will not be of any use for telling one how the soul can communicate to itself the feeling of pain, since for that (in your judgement) it would have to know already that I am being pricked; whereas

it possesses this knowledge only through the pain it feels.[1] By way of reply, I shall explain this term which you consider obscure, and apply it to the objection you have raised. One thing *expresses* another (in my terminology) when there exists a constant and fixed relationship between what can be said of one and of the other. This is the way that a perspectival projection expresses its ground-plan. Expression is common to all forms, and it is a genus of which natural perception, animal sensation and intellectual knowledge are species. In natural perception and in sensation, it is enough for what is divisible and material and dispersed into many entities to be expressed or represented in a single indivisible entity or in substance which is endowed with genuine unity. One cannot doubt the possibility of a noble representation of many things in a single one, since our soul provides us with an example of it. But this representation is accompanied by consciousness in the rational soul, and then it is called thought. Now, this expression occurs everywhere, because every substance is in harmony with every other and undergoes some proportionate change which corresponds to the smallest change occurring in the whole universe, although this change is more or less noticeable to the extent that other bodies or their actions have more or less connexion with ours. I believe that M. Descartes himself would have agreed with this, for he would undoubtedly grant that because of the continuity and divisibility of all matter the smallest movement extends its effect over neighbouring bodies and consequently from neighbour to neighbour *ad infinitum*, but proportionately decreased; thus our body must be affected in a way by the changes of all the others. Now, to all the movements of our / body there correspond certain more or less confused perceptions or thoughts of our soul,
G, p. 113 therefore the soul too will have some thought about all the movements of the universe; and in my view every other soul or substance will have some perception or expression of them. True, we do not distinctly perceive all the movements

[1] Cf. p. 132.

of our body, as for instance that of lymph, but (to use an example I have already cited)[1] it is like my being obliged to have some perception of the movement of each wave of the shore so as to be able to perceive what is the result of their combination, that is to say from that great noise which one hears close to the sea; so we sense too some confused result from all the movements taking place in us, but since we are used to this movement within us, we do not perceive it distinctly and reflectively except when there is a considerable alteration, as at the beginning of illnesses. And one would like to see doctors applying themselves to a more precise discernment of these kinds of confused feelings which we have in our body. Now, since we perceive other bodies only through their relationship to ours, I was right to say that the soul expresses better what pertains to our body; therefore, the satellites of Saturn or Jupiter are known only in consequence of a movement which occurs in our eyes. I think that in all this a Cartesian will share my view, except that I assume that around us there exist other souls than ours, to which I ascribe an expression or perception inferior to thought, whereas the Cartesians do not admit feeling in animals or substantial form outside of man; which has nothing to do with the question we are discussing here, concerning the cause of pain. It is therefore a matter now of knowing how the soul perceives the movements of its body, since one does not see how one can explain by what channels the action of an extended mass passes onto an indivisible entity. The ordinary Cartesians confess that they cannot account for this union; the authors of the hypothesis of occasional causes think that it is 'a difficulty worthy of a liberator, for which the intervention of a *Deus ex machina* is necessary';[2] for myself, I explain it in a natural manner. By the concept of substance or complete entity in general, which implies that its present state is always a natural

[1] Cf. p. 114

[2] 'nodus vindice dignus, cui Deus ex machina intervenire debeat'. Leibniz is here adapting Horace, *Ars poetica*, l. 191.

consequence of its preceding state, it follows that the nature of every individual substance and consequently of every soul
G, p. 114 is to express the universe; it was first / created in such a way that by virtue of the inherent laws of its nature, it must happen that it is in harmony with what is taking place in bodies, and particularly in its own; so one must not be surprised that it is its nature to indicate to itself the prick when it happens to its body. And to conclude my explanation on this subject, let us suppose:

State of the bodies at moment A	State of the soul at moment A
State of the bodies at following moment B (prick)	State of the soul at moment B (pain)

Since therefore the state of the bodies at moment B follows from the state of the bodies at moment A, likewise state B of the soul is a succession of A, the preceding state of the same soul, in accordance with the concept of substance in general. Now, states of the soul are naturally and essentially expressions of the corresponding states of the world, and particularly of the bodies which then belong to them; therefore, since the prick forms part of the state of the body at moment B, the representation or expression of the prick, which is pain, will also form part of the state of the soul at moment B; for, as one movement follows from another, likewise one representation follows from another representation in a substance whose nature it is to be representative. Thus it is indeed necessary for the soul to perceive the prick when the laws of the relationship require it to express more distinctly a more noticeable change in the parts of its body. It is true that the soul does not always perceive distinctly the causes of the prick and of its future pain, when they are still hidden in the representation of state A, as when one is asleep or otherwise fails to see the pin approaching, but it is because the movements of the pin make too little of an impression then, and although we are already affected in a way by all these movements and the representations in our soul, and

although we thus have within us the representation or expression of the causes of the prick and consequently the cause of the representation of the same prick, that is to say the cause of the pain, we cannot distinguish them from so many other thoughts and movements except when they become considerable. Our soul reflects only upon more extraordinary phenomena which are distinguished from the others, it does not have a distinct thought about any when it is thinking equally about all. After that, I cannot guess wherein one can find the least shadow of difficulty, unless one denies that God can create substances / which are G, p. 115
originally composed in such a way that it happens to them by virtue of their own nature to harmonize subsequently with the phenomena of all others. Now, there is no likelihood of denying this possibility, and since we see that mathematicians represent the movements of the heavens in a machine (as when 'The order of the sky, the reliability of nature and the laws of the gods, the old man of Syracuse[1] reproduced it all by his skill'[2], which we can do much better today than Archimedes could in his time), why could not God, who infinitely surpasses them, originally create representative substances in such a way that they express by their own laws, in accordance with the natural change of their thoughts or representations, all that is to happen to every body, which seems to me not only easy to conceive, but also worthy of God and of the beauty of the universe, and in a way necessary, since all substances must have a harmony and connexion which links them together, and must express in themselves the same universe and the universal cause which is the will of their creator and the decrees or laws which he has established to make them adapt to one another as well as possible? So this mutual relationship of different substances (which cannot act upon one another, if one speaks with metaphysical strictness, and which yet harmonize as if

[1] Archimedes.

[2] 'Jura poli rerumque fidem legesque deorum Cuncta Syracusius transtulit arte senex' (Claudian, *Epigrams*, xvi).

they did act upon one another), *is one of the strongest proofs of God's existence* or of a common cause that every effect must always express according to its point of view and ability. Otherwise, the phenomena of different minds would not harmonize with each other, and there would be as many systems as substances; or else it would be pure chance if they did sometimes harmonize. The whole concept we have of time and space is based upon this harmony, but I should never have finished if I were to explain in thorough detail everything related to our topic. However, I have preferred to be prolix rather than not to express myself at sufficient length.

To pass to your other doubts,[1] I think now that you will see, Sir, what I mean when I say that a bodily substance imparts to itself its own movement, or rather what is real in the movement at each moment, that is to say, the derivative force, of which it is a consequence; since every present[2] state of a substance is a consequence of its preceding state. True,
G, p. 116 a body without movement / cannot impart any to itself; but I maintain that there is no such body.[3] You will tell me that God can reduce a body to the state of perfect rest, but my answer is that God can also reduce it to nothing and that this body without active or passive qualities is far from containing a substance; or at least it is enough for me to declare that if ever God reduces a certain body to perfect rest, which can be performed only by a miracle, a new miracle will be necessary to restore some movement to it. You can also see that my opinion confirms rather than

[1] Cf. pp. 132–3.

[2] 'précédent' (Gerhardt): corrected according to Le Roy (p. 184).

[3] There follows here a passage in Leibniz's copy which he has enclosed in brackets and which is not reproduced in the copy sent to Arnauld: 'also bodies strictly speaking are not pushed by others when an impact occurs, but by their own movement or by their own elasticity, which is still a movement of their parts. Every bodily mass, large or small, has already in it all the force that it can ever acquire, but the encounter with other bodies merely gives it its determination, or rather this determination occurs only at the time of the encounter.'

destroys the proof of the prime mover. It is always necessary to account for the way in which motion, its laws and the harmony of movements one with another began; which cannot be done without recourse to God. Besides, my hand moves not because I will it to do so (for it is useless for me to will a mountain to move; if I do not have a miraculous faith, nothing will happen) but because I could not will it with success, except at the precise moment that the elasticity in my hand is about to slacken in the requisite way to achieve this result; which happens all the more because my feelings harmonize with the movements of my body. They go with one another, by virtue of the relationship established above, but each has its immediate cause in itself.

I arrive at the matter of forms or souls, which I consider to be indivisible and indestructible.[1] I am not the first to hold this view. Parmenides[2] (of whom Plato speaks reverently) as well as Melissus[3] maintained that generation and corruption were only apparent; Aristotle points it out, Book III *De caelo*, chapter II. And the author of the 1st Book *Concerning Diet*, which is thought to be by Hippocrates,[4] says explicitly than an animal cannot be engendered entirely anew, nor totally destroyed. Albert the Great[5] and John Bacon[6] seem to have thought that substantial forms were already hidden in matter from all time; Fernel[7] makes them come down from the sky, to say nothing of those who detach them from the world-soul. They have / all seen a part of the G, p. 117
truth, but not elaborated it; many have believed in transmigration, others in the translation of souls, instead of thinking of the transmigration and transformation of an animal already formed. Others, unable otherwise to account for the origin of forms, have allowed that they begin through

[1] Cf. pp. 133–8. [2] Cf. p. 123, n. 1.
[3] Fifth century B.C.; disciple of Parmenides.
[4] Cf. p. 93, n. 4. [5] Cf. p. 93, n. 3.
[6] The reference is to John of Baconthorp (d. 1348), who tried to reconcile the doctrines of Averroes with those of Christianity.
[7] Jean Fernel (1497–1558); French astronomer, mathematician and doctor.

a genuine act of creation, and whereas I admit this act during the sequence of time only where the rational soul is concerned, and maintain that all non-thinking forms were created with the world, they believe that this act of creation happens every day when the smallest worm is engendered. Philoponus,[1] an ancient interpreter of Aristotle, in his book against Proclus, and Gabriel Biel[2] seem to have shared this view. It seems to me that Saint Thomas considers the animal soul to be indivisible.[3] And our Cartesians go much further, since they hold that every soul and genuine substantial form cannot be destroyed or engendered. That is why they do not grant animals a soul, although M. Descartes, in a letter to M. Morus,[4] points out that he does not want to say for certain that they do not have one.[5] And since no exception is taken to those who introduce atoms existing forever, why shall one find it strange if as much is said of souls to whom indivisibility is suited by their nature, all the more because by linking the view of the Cartesians regarding substance and the soul with that of the whole world regarding the animal soul, it follows necessarily. It will be difficult to wrest from the human race the universally held opinion, a catholic one if there ever was, that animals have feeling. Now, assuming that it is true, my contention about these souls is not only necessary according to the Cartesians but also important for morality and religion, in order to destroy a dangerous opinion for which many intelligent people have an inclination and which the Italian philosophers, disciples of Averroes, had spread about the world, namely, that individual souls return to the world-soul when an animal

[1] John Philoponus (first half of the sixth century A.D.) was an Alexandrian grammarian and commentator on Aristotle. Leibniz is referring to his *De aeternitate mundi* (529).

[2] Biel (c. 1425–95) wrote an influential commentary on the *Sentences* of Peter Lombard, in which his aim was simply to provide a shorter version of Ockham's work.

[3] Cf. p. 93.

[4] Henry More (1614–87).

[5] 5 February 1649 (éd. Adam et Tannery, V, pp. 276–7).

dies,[1] which is contrary to my proofs of the nature of individual substance, and cannot be conceived of distinctly; since every individual substance must forever exist separately once it has begun to be. That is why the truths which I put forward are quite important, and if all who acknowledge animal souls must approve of them, the others at least must not find them strange.

But to come to your doubts about this indestructibility—

1. I had asserted that one must admit in bodies the existence of something which is truly a single entity, since matter or extended mass in itself can only be many entities,[2] as St. Augustine very well pointed out after Plato. Now, I deduce that many entities do not exist where there is not a single one that is genuinely an entity and that every multiplicity presupposes unity. To this you reply in many ways; but without discussing the argument in itself which is unassailable, for you make use only of obstacles and *ad hominem* objections, and try to point out that what I am saying is not enough to resolve the problem. First of all you are surprised, Sir, how I can use the argument, which would have been obvious in M. Cordemoy's writings, for he composes everything of atoms, but which I must necessarily think false (as you see it) since, apart from animate bodies which do not make up the one hundred thousand thousandth part of the others, all the others must necessarily be many entities,[2] and thus the problem recurs. But from that I see, Sir, that I have not yet expressed my ideas clearly so as to make you understand my hypothesis. For apart from the fact that I do not remember saying that there is no substantial form except souls, I am very far removed from the opinion which states that animate bodies are only a small part of the others. For I believe rather that everything is full of animate bodies, and to my mind there are incomparably more souls than there are atoms for M. Cordemoy, who G, p. 118

[1] Leibniz returned to this topic in 1702, in his *Considérations sur la doctrine d'un esprit universel unique* (G vi. 529 ff.; Loemker, pp. 899 ff.).

[2] 'plura entia'.

makes a finite number of them, whereas I maintain that the number of souls or at least of forms is quite infinite, and that since matter is endlessly divisible, one cannot fix on a part so small that there are no animate bodies within, or at least bodies endowed with a basic entelechy or (if you permit one to use the word 'life' so generally) with a vital principle, that is to say bodily substances, about which it may be said in general of them all that they are living.

2. As for this other problem that you raise, Sir, namely that the soul joined to matter does not make an entity that is truly one, since matter is not truly one in itself, and that the soul, in your view, gives it only an extrinsic denomination, I answer that it is the animate substance to which this matter belongs which is truly an entity, and the matter considered as the mass in itself is only a pure phenomenon or
G, p. 119 a well-founded appearance, as also are space and / time. It has not even precise, fixed qualities which can give it the appearance of a specific entity, as I have already hinted in my previous letter; since the shape itself, which is of the essence of a finite extended mass, is never exact and strictly specific in nature, because of the actual division *ad infinitum* of the parts of matter. There is never a sphere without inequalities, nor a straight line without curves intermingled, nor a curve of a certain finite nature unmixed with some other, and in small parts as well as in large, with the result that shape, far from being constitutive of bodies, is not even a wholly real and specific quality outside of thought, and one will never be able to fix upon a certain precise surface in a body as one might do if there were atoms. And I can say the same about magnitude and motion, namely that these qualities or predicates partake of the phenomenal as do colours and sounds, and although they contain a greater amount of distinct knowledge, they cannot either stand up to the finest analysis; and consequently, extended mass considered without entelechies, consisting only of these qualities, is not bodily substance, but an entirely pure phenomenon like the rainbow; therefore philosophers have recognized

that it is form which gives determinate being to matter, and those who do not pay attention to that will never emerge from the maze of the composition of the continuum,[1] if they once enter it. Only indivisible substances and their different states are absolutely real. This is what Parmenides and Plato and other Ancients have indeed recognized. Besides, I grant that the name of 'one' can be given to an assembly of inanimate bodies although no substantial form links them together, just as I can say: there is *one* rainbow, there is *one* flock; but it is a phenomenal or notional unity which is not enough for the reality in phenomena. But if one considers as matter of bodily substance not formless mass but a second matter which is the multiplicity of substances of which the mass is that of the total body, it may be said that these substances are parts of this matter, just as those which enter into our body form part of it, for as our body is the matter, and the soul is the form of our substance, it is the same with other bodily substances. And / I find no more of a problem G, p. 120
there than with men, where we are in agreement about all that. The problems that are raised on these topics originate *inter alia* from the absence usually of a distinct enough concept of the whole and the part, which basically is nothing else but an immediate requisite of the whole, and in a way homogeneous. Thus parts can constitute a whole, whether it has a genuine unity or not. It is true that the whole which has a genuine unity can remain strictly the same individual, although it loses or gains parts, as we experience in ourselves; thus the parts are only temporarily[2] immediate requisites.[3] But if one were to understand by the term 'matter' something that is always essential to the same substance, one might in the sense of certain Scholastics understand thereby the primitive passive power of a substance, and in this sense matter would not be extended or divisible, although it would be the principle of divisibility or

[1] 'de compositione continui'.
[2] 'pro tempore'.
[3] Cf. Introduction, p. xxxiv.

of that which amounts to it in the substance. But I do not wish to argue over the use of terms.[1]

3. You raise the objection that I do not admit substantial forms except in the animate body (which I do not however recall saying);[2] now, since all organic bodies are many entities,[3] forms or souls, far from making an entity of them, rather require in consequence many entities so that the bodies may be animate. I reply that assuming there is a soul or entelechy in animals or other bodily substances, one must argue from it on this point as we all argue from man who is an entity endowed with a genuine unity conferred on him by his soul, notwithstanding the fact that the mass of his body is divided into organs, vessels, humours, spirits, and that the parts are undoubtedly full of an infinite number of other bodily substances endowed with their own entelechies. As this third objection is substantially in keeping with the previous one, that solution will serve here too.

4. You consider that one has no basis for conferring a soul upon animals, and you think that if there were one, it would be a mind, that is to say a thinking substance, since we have knowledge only of bodies and minds, and have no notion of another substance. Now, to say that an oyster thinks, that a worm thinks is what one finds hard to believe. This objection likewise concerns all who are not Cartesians; but apart from the fact that one must believe it not to be entirely
G, p. 121 without basis that / the whole of mankind has always inclined to the view which it holds about animals' feeling, I think I have shown that every substance is indivisible and that consequently every bodily substance must have a soul or at least an entelechy which is analogous to the soul, since otherwise bodies would be no more than phenomena.

To assert that every substance which is not divisible (that

[1] The passage beginning 'But if one considers' is written within brackets in the margin of the MS. (Lewis, p. 87, n. 1), and was not sent to Arnauld.

[2] Cf. p. 134, n. 5.

[3] 'plura entia'.

is to say, in my opinion, every substance generally) is a mind and must think seems to me incomparably more audacious and groundless than the preservation of forms. We have knowledge only of five senses and of a certain number of metals; must one conclude from this that there are no others in the world? There is much more likelihood that nature, which loves variety, has produced other forms than those which think. If I can prove that there are no other figures of the second degree[1] than conic sections, it is because I have a distinct notion of these lines, which permits me to arrive at an exact division; but as we have no distinct notion of thought, and cannot demonstrate that the concept of an indivisible substance is the same as that of a thinking substance, we have no cause for asserting it. I agree that the notion we have of thought is clear; but not all that is clear is distinct. We know thought only through internal sensation (as Father Malebranche has already observed); but one can know through sensation only the things which one has experienced; and as we have not experienced the functions of other forms, one must not be astonished that we have no clear notion of them; for we should not have any even if it were conceded that some of these forms exist. It is an error to wish to use confused notions, however clear they are, to prove that something cannot exist. And when I consider only distinct notions, it seems to me possible to conceive that phenomena that are divisible or made up of many entities can be expressed or represented in a single indivisible entity, and this is enough for conceiving of a perception, without the necessity of joining thought or reflexion to this representation. I should like to be able to explain the differences or degrees of the other immaterial expressions which are devoid of thought, in order to discriminate, so far as one can, between bodily or living substances and animals; but I have not pondered this question sufficiently, nor studied nature enough to be able / to judge of forms by comparing their organs and G, p. 122

[1] Leibniz means a representation, in the form of a graph, of a quadratic equation in x and y.

operations. M. Malpighi,[1] on the basis of very considerable anatomical analogies, is much inclined to believe that plants can be included in the same category as animals, and that they are imperfect animals.

5. It remains only to meet the obstacles which you have cited, Sir, as opposed to the indestructibility of substantial forms; and I am first of all astonished that you find it strange and indefensible, for according to your own views all who bestow a soul and feeling upon animals must support this indestructibility. These alleged obstacles are merely imaginary prejudices which may check the common people but have no effect upon minds capable of meditation. So I think that it will be easy to give you satisfaction on these points. Those who conceive that there is almost an infinite number of little animals in the smallest drop of water, as the experiments of M. Leeuwenhoeck have made known, and who do not find it strange that matter is everywhere full of animate substances, will not find it strange either that there is something animate even in ashes and that fire can transform an animal and reduce it in size, instead of totally destroying it. What can be said of one caterpillar or silkworm may be said of a hundred or a thousand; but it does not follow that we should see the rebirth of silkworms from the ashes. That is perhaps not the order of nature. I know that many assert that seminal virtues remain in the ashes to such a degree that plants can be reborn from them, but I do not wish to make use of doubtful experiments. Whether these organic little bodies, wrapped up as they are because of a sort of contraction from a larger body which has undergone corruption, are entirely (it seems) outside the domain of procreation, or whether they can make a return upon the scene in

[1] Marcello Malpighi (1628–94) was one of the early microscopists. His assumption that there are physiological analogies between animals and plants sometimes led him into error; e.g. he tried to find in plants reproductive organs like those in vertebrates. Sometimes, however, the idea was fruitful, as when he compared the 'breathing' of plants with that of animals. (Cf. A. R. Hall, op. cit., pp. 288 ff.)

their own time, is what I cannot establish. Those are secrets[1] of nature, in which men must avow their ignorance.

6. It is only in appearance and in the imagination that the problem is greater regarding the larger animals, whom one sees as being born only from the union of two sexes, which apparently is no less true of the lesser insects. I learned some time ago that M. Leeuwenhoeck holds views quite close to mine, since he maintains that even the largest animals are born through a manner of transformation;[2] I do not dare to approve or reject the details of his opinion, / but G, p. 123
I consider it to be very true in general, and M. Swammerdam,[3] another great observer and anatomist, gives sufficient indication that he too was inclined to it. Now, the judgements of these gentlemen are as good as those of many others on these topics. True, I do not observe that they have taken their opinion to the point of saying that corruption and death itself is also a transformation for living beings devoid of a rational soul, as I maintain; but I believe that if this view had occurred to them they would not have thought it absurd, and there is nothing so natural as to believe that what has no beginning is also imperishable. And when one admits that all acts of procreation are only increases and developments of an animal that is already formed, one will easily convince oneself that corruption or death is nothing other than the diminution and envelopment of an animal which nevertheless goes on surviving and remaining alive and organic. To be sure, it is not so easy to make it credible by particular experiments as with procreation, but the reason can be seen: it is because procreation advances naturally and gradually, which gives us time for observation, but death takes one too far back, by a leap,[4] and returns at

[1] 'décrets' (Gerhardt); corrected according to Le Roy (p. 189).

[2] Cf. p. 89.

[3] Jan Swammerdam (1637–80) was another pioneer microscopist. Like Malpighi, he believed in the theory of 'preformation', i.e. that the foetus is 'pre-formed' in the unfertilized egg, and that growth is merely a process of enlargement. (A. R. Hall, op. cit., pp. 288 ff.).

[4] 'per saltum'.

once to parts too small for us, because it occurs ordinarily in too violent a way, which prevents us from perceiving the detail of this regression; however, sleep, which is a likeness of death, trances, the burial of a silkworm in its cocoon, which may be considered a death, the resurrection of drowned flies achieved by means of a dry powder with which one covers them (whereas they would remain dead for good if left without help), and of swallows which take up their winter quarters in the reeds and are discovered apparently lifeless; the experiments on men frozen to death, drowned or strangled, whom one has restored to life, about which a man of discernment recently composed a treatise in German, in which after relating examples, even known to him personally, he exhorts those who find themselves in the presence of such people to make more efforts than are customary to revive them, and stipulates the method for it; all these things can confirm my view that these different states differ only in degree, and if one cannot practise resuscitations in other kinds of deaths, it is either because one is ignorant of what
G, p. 124 must be done or because, even if one knew, our hands, / instruments and remedies are powerless to succeed, particularly when the dissolution extends straightaway to parts that are too small. One must therefore not stop at the concepts which the common people may have of life and death, when one possesses analogies and, what is more, solid arguments, proving the opposite. For I think I have sufficiently shown that there must be entelechies, if there are bodily substances; and when one admits these entelechies or these souls, one must grant that they cannot be engendered or destroyed; after which, it is incomparably more reasonable to conceive of the transformations of animate bodies than to imagine the transfer of souls from one body to another, about which the very ancient belief comes only, it would appear, from a misunderstanding over transformation. To say that animal souls exist without bodies, or hidden in an inorganic body, appears less natural. Whether the animal created by the contraction of the body of the ram which Abraham sacri-

ficed in place of Isaac is to be called a ram is a question of terminology more or less as would be the question whether a butterfly can be called a silkworm. The problem which you find, Sir, in this ram reduced to ashes arises only because I had not expressed my ideas clearly enough, for you assume that no organic body remains in these ashes, and this justifies your saying that this infinite number of souls devoid of organic bodies would be a monstrosity; whereas I assume that there is naturally no soul without an animate body, and no animate body without organs; and neither ashes nor other masses seem to me incapable of containing organic bodies.

As regards minds, that is to say thinking substances, which are capable of knowing God and discovering eternal truths, I maintain that God governs them according to different laws from those by which he governs other substances. For as all the forms of substances express the whole universe, it may be said that the substances of the animals express the world rather than God but that minds express God rather than the world. So God governs the substances of the animals according to the material laws of force or of communications of movement, but minds according to the spiritual laws of justice, of which the others are incapable. And that is why the substances of the animals may be called material, because the control God exercises over them is that of a workman or machinist; but where minds are concerned, God fulfils the function / of prince or legislator, which is infinitely more G, p. 125
exalted. And since God's attitude to these material substances is only what it is to everything, namely that of the general author of entities, he takes on another role respecting minds, which makes one conceive of him as endowed with moral will and qualities, since he is himself a mind and as it were one amongst us, to the point of entering with us into a social relationship in which he is the leader. And it is this society or general commonwealth of minds under this sovereign monarch which is the noblest part of the universe, made up of as many little gods beneath this great God. For it can be

said that created minds differ from God only in degree, from finite to infinite. And one can truly assert that the whole universe was created only so as to contribute to the embellishment and the happiness of that city of God. That is why everything is so arranged that the laws of force or purely material laws conspire in the whole universe to carry out the laws of justice or love, that nothing can harm souls, which are in God's hands, and that everything must result in the greatest good of those who love him. That is why, since minds must keep their personality and moral qualities in order that the city of God lose no one, it is necessary for them to preserve in particular a kind of recollection, consciousness or power to know what they are, upon which depends the whole of their morality, penalties and punishments, and it is consequently necessary that they be free from those upheavals in the universe which would make them totally unrecognizable to themselves, and would turn them, morally speaking, into another person. Whereas it is enough if the substances of the animals remain merely the same individual in metaphysical rigour, although they may be subjected to every imaginable change, since they too are devoid of consciousness or reflexion. As for the particulars of the state of the human soul after death, and how it is free from the upsets of affairs, only revelation can inform us about that in detail; the jurisdiction of reason does not extend that far. Perhaps someone will object to my contention that God has bestowed souls upon every natural machine capable of them, because since souls do not hinder one another and take up no room, it is possible to bestow souls upon them especially as there is more perfection from possessing them and because God does everything in the most perfect manner possible; and the void of forms exists no more than that of bodies.[1] It
G, p. 126 might therefore be said by the / same reasoning that God was also obliged to bestow rational souls, or souls capable of reflexion, upon every animate substance. But I reply that the laws superior to those of material nature, namely the

[1] 'et non magis datur vacuum formarum quam corporum'.

laws of justice, are opposed to it; since the order of the universe would not have allowed justice to be observed with regard to all substances, it was therefore necessary that at least no injustice might happen to them; that is why they have been created without the capacity for reflexion or consciousness, and consequently not capable of happiness and unhappiness.

Finally, to collect my thoughts together in few words: I maintain that every substance contains in its present state all its states past and future, and even expresses the whole universe according to its point of view, since nothing is so far removed from other things that it does not have communication with them, and in particular[1] according to the connexion with the parts of its body, of which it is a more immediate expression; and consequently nothing occurs to it except from its own depths and by virtue of its own laws, provided that one adds God's concourse. But it perceives other things, because it expresses them naturally, having been originally created in such a way that it can subsequently do so and adapt itself to it as necessary, and it is in this obligation imposed from the beginning that there consists what is called the action of one substance upon another. As for bodily substances, I maintain that mass, when one considers only what in it is divisible, is a pure phenomenon, that every substance has a genuine unity, in metaphysical rigour, and that it cannot be divided, engendered or corrupted, that the whole of matter must be full of substances animate or at least living, that procreations and corruptions are only transformations from the smaller to[2] the greater or *vice versa*, and that there is no particle of matter in which does not exist a world of an infinite number of creatures, both organic and agglomerated: and above all that[3] the works of God are infinitely greater, more beautiful, more numerous and better

[1] 'sera particulièrement' (Gerhardt): corrected according to Le Roy (p. 313— 'cela particulièrement').

[2] 'ou' (Gerhardt): corrected according to Le Roy (p. 313).

[3] 'ce que' (Gerhardt): corrected according to Le Roy (p. 313).

ordered than one generally believes; and that the machine or organization, that is to say order, is as it were essential to them down to the smallest parts. And that thus there is no hypothesis which acquaints one better with God's wisdom than ours, according to which there exist everywhere substances that indicate his perfection, and are as many different mirrors of the beauty of the universe, since nothing remains void, sterile, lacking cultivation and perception.
G, p. 127 One must consider as beyond doubt that the laws of / motion and bodily revolutions are useful to the laws of justice and order, which are assuredly observed in the best possible way in the government of minds, that is to say of intelligent souls, who enter into a social relationship with him[1] and make up with him a kind of perfect city of which he is the monarch.

Now I think, Sir, I have left out nothing of all the difficulties which you had explained or at least indicated, and also of those which I thought you could still have. True, that has swollen this letter; but it would have been more difficult for me to contain the same meaning in fewer words, and perhaps it would not have lacked obscurity. I think now you will find my views quite coherent, and also in keeping with accepted beliefs. I am not overthrowing established opinions, but explaining them and developing them further. If you could find time to look again one day at what we had finally decided about the concept of an individual substance, you would perhaps find that in conceding me these beginnings one is subsequently obliged to grant me all the rest. I have however tried to write this letter in such a way that it explains and defends itself. One will still be able to separate the questions; for those who will not want to acknowledge that souls exist in animals, and substantial forms elsewhere, will nonetheless be able to approve of the way in which I explain the unity of mind and body, and all I say about true substance; reserving their right to preserve in any way they can, without such forms or anything possessing true unity,

[1] i.e. God.

either by points or by atoms, if they think best, the reality of matter and bodily substances, and even to leave that open; for one can limit one's researches where one considers it appropriate. But one must not tarry on such a fine journey if one wishes to have true ideas about the universe and the perfection of God's works, which still provide us with the most substantial arguments regarding God and our soul.

It is strange that the abbé Catelan has totally deviated from my meaning, and you have indeed suspected it, Sir.[1] He puts forward three propositions, and says that I find them contradictory. But I find no contradiction at all, and I use these same propositions to prove the absurdity of the Cartesian principle. You see what it is to be involved with people who consider things only superficially. If that happens / on a mathematical topic, what should one not expect G, p. 128
in metaphysics and morality? That is why I consider myself fortunate to have found in you a critic both precise and just. I wish you many more years of life, for the public's benefit and for mine, and am, etc.[2]

Appendix I to Letter XXVI[3]

Here is the reply to your latest objections; it has become a

[1] Cf. p. 137.

[2] Leibniz's last paragraph had originally read as follows: 'I have seen M. Catelan's Remark in the *Nouvelles de la République des lettres* for the month of June, and I think that you have guessed the truth, when you say that perhaps he has not understood my meaning. He has understood it so little that the situation is pitiful. He puts forward three propositions, and saying that I find them contradictory, he applies himself to proving and reconciling them; and yet far from my having ever found the least difficulty or contradiction in them, it is through their conjunction that I claim to have demonstrated the falsity of the Cartesian principle. You see what it is to be involved with people who treat things without due consideration. The good part of it is that he has so clearly asserted wherein he was mistaken, otherwise we would yet perhaps have roamed over a good deal of ground. God preserve us from such an antagonist; in morality or in metaphysics, but above all in theology, there would be no way of extricating oneself.'

[3] Included in Leibniz's notes under the heading 'Separate letter to Monsieur Arnauld to which the preceding discourse has been attached';

little lengthy because I wanted to express my ideas precisely and leave out nothing that concerned your doubts. I have often included your own words, which has also contributed to swelling it. As I had worked out all these things a long time ago and foreseen, if I may venture to say so, most of the objections, it has cost me almost no meditation, and it was necessary for me merely to pour my thoughts onto the paper and read them over afterwards. I say this, Sir, so that you shall not think I am buried in these matters at the cost of other necessary preoccupations. You have urged me yourself to go this far, by raising objections and queries which I have wanted to satisfy, so as to profit from your learning and also to let you know of my sincere desire to conceal nothing.

I am presently much occupied by the history of the noble House of Brunswick; I have consulted many archives this summer and am going to make a journey into South Germany[1] in order to look for certain muniments. That does not prevent me from wanting to know your opinion about my
G, p. 129 elucidations, / when it will become convenient for you to do so, as well as about my reply to the abbé Catelan which I send you herewith, the more so as it is short and in my opinion conclusive, if only it is paid a little[2] attention. If this abbé Catelan does not show more skill than up to now, it is not from him that the elucidation of this topic is to be expected. I should like you to be able to give it a moment of serious attention; you would perhaps be surprised to find that what has been assumed to be an unquestionable principle is so easy to demolish. For it is conclusively proved that the speeds which the bodies have acquired in falling are as the square roots of the heights from which they have fallen. Now, if one omits the external resistances, a body can

in fact, it is not so much a separate letter as a variant on the conclusion to the previous one. It was not sent to Arnauld.

[1] 'la haute Allemagne'.

[2] 'tout fort peu' (Gerhardt): corrected according to Le Roy (p. 194—'tant soit peu').

rise again to the exact height from which it has fallen. Therefore . . .

Appendix II to Letter XXVI[1]

I am sending you herewith my reply to the abbé Catelan, which will perhaps be inserted in the *Nouvelles de la République des lettres*.[2] Thus we are back at the beginning again and I have made a mistake in answering the first reply; I ought simply to have said that it did not meet my objection and pointed out the places to which a reply is necessary, as I do now. I have added in my answer a mechanical problem which can be reduced to geometry; but one must be adroit, and I shall see if M. Catelan will venture to take the bait. It seems to me that he is not the most able of men and I am surprised to see that among so many Cartesians so few imitate M. Descartes in trying to penetrate further.

[1] A further variant in Leibniz's notes.

[2] In the copy sent to Arnauld, Leibniz appends the following postscript: 'I have added a reply to the abbé which will perhaps be inserted in the *Nouvelles de la République des lettres*.' It did in fact appear in September 1687, pp. 952–6. Cf. G iii. 49 ff.

XXVII

G, p. 132

Leibniz to Arnauld

Nuremberg, 4/14 January 1688

You will perhaps have seen in the *Nouvelles de la République des lettres* for September my reply to the abbé Catelan. It is strange to see that many people reply not to what is said to them but to what they imagine. That is what the abbé has done up to now. That is why it was necessary to break off and bring him back to the first objection. I have simply taken the opportunity of this dispute to put a very interesting geometrico-mechanical problem that I had just solved, which consists of finding a line that I call isochronous, in which a falling body descends uniformly and approaches the horizon evenly in equal times, notwithstanding the acceleration which is communicated to it, and which I offset by a constant change of incline. This I have done in order to get the abbé to say something useful, and to make him aware that the ordinary Cartesian analysis is found very much wanting in difficult problems. I have partly succeeded. For M. Huygens has given the answer in the *Nouvelles* for October[1]. I knew well enough that M. Huygens could do it, that is why I did not expect him to take the trouble, or at least to publish his solution and extricate the abbé. But as M. Huygens' answer is enigmatic in part, I am sending him the supplement, apparently in order to recognize whether I have had it too, and in the meantime we shall see what the abbé will say. It is true that once one knows the nature of the line which M. Huygens has published, the rest is completed by ordinary analysis. But without that it is a difficult matter. For the converse of the tangents or, given the property

[1] Cf. Gerhardt, *Der Briefwechsel von G. W. Leibniz mit Mathematikern* (Berlin, 1899), pp. 587 ff.

of / tangents, to find the line[1] (which is what this proposed G, p. 133
problem amounts to), is a question which M. Descartes himself confessed in his letters he had not mastered. For more often than not it rises to transcendentals (as I call it) which are of no degree, and when it comes down to curves of a certain degree (as happens here), an ordinary analyst will have difficulty in recognizing it.

Besides, I should wish with all my heart that you might find the time to ponder for a half-hour upon my objection to the Cartesians which the abbé tries to resolve. Your learning and your sincerity assure me that I would make you grasp the point, and that you would recognize in good faith what is involved. The discussion is not long, and the matter is of great importance, not only for mechanics but also in metaphysics, for motion in itself separated from force is merely relative, and one cannot establish its subject. But force is something real and absolute, and since its reckoning is different from that of motion, as I demonstrate clearly, one must not be surprised that nature preserves the same quantity of force and not the same quantity of motion. However, it follows that there is in nature something other than extension and motion, unless one refuses things all force or power, which would be to change them from substances, which they are, into modes; as does Spinoza, who insists that God alone is a substance, and that all other things are only modifications of him. This Spinoza is full of very involved imaginings, and his so-called proofs concerning God[2] have not even the appearance of truth. However, I maintain that one created substance does not act upon another, in metaphysical rigour, that is to say with a real influence. So one cannot explain distinctly, unless one relates it to God, the nature of this influence, whose operation is a continual creation and whose source is the essential dependence of creatures. But in order to speak like other men, who are right when they say that one substance acts upon another, one

[1] 'data tangentium proprietate invenire lineam'.
[2] 'de Deo'.

must give another concept to what is called 'action', which would be too long to deduce here, and besides I refer to my last letter which is quite prolix.

I do not know if the Reverend Father Malebranche has answered my reply,[1] given some time during last summer, in which I advance yet another principle of use both in
G, p. 134 mechanics and in geometry that / clearly demolishes the rules of motion both of Descartes and of this Father, and also his defence of them in the *Nouvelles*. If I find enough time one day, I want to complete my thoughts on the general Characteristic or manner of universal calculation, which must be of use in the other sciences as in mathematics. I have already some fine essays on the subject; I have definitions, axioms, theorems, and very remarkable problems of coincidence, of determination (or concerning the unique),[2] of similitude, of relationship in general, of power or cause, of substance, and in all places I proceed by letters in a precise and rigorous way, as in algebra. I already have some essays in jurisprudence, and one can truthfully say that there are no authors whose style is closer to that of geometers than that of the jurists in the *Digests*. But how (you will ask me) can one apply this calculation to conjectural matters? I reply that it is along the lines of the demonstrations given by MM. Pascal, Huygens and others concerning chance.[3] For one can always determine the most probable and the most certain as far as it is possible from the given facts.[4]

But I must not detain you any longer, and perhaps it is already too long. I should not dare to do it so often, if the topics on which I have wished to hear your opinion were not important. I pray God to give you long life, so that we may always profit from your learning, and I am zealously, etc.[5]

[1] Cf. p. 130, n.1.
[2] 'de unico'.
[3] 'de alea'.
[4] 'ex datis'.
[5] This version was greatly modified in the copy sent to Arnauld, which contains no new ideas not found here and is generally an abridgement of many of the points expanded in this draft.

XXVIII

Leibniz to Arnauld

Venice, 23 March 1690[1]

I am now about to return home after a long journey undertaken on the orders of my prince, which was useful for historical research and during which I have found documents, titles and unquestionable proofs suitable for justifying the common origin of the noble houses of Brunswick and Este which MM. Justel, du Cange and others had good reason to call in question, because there were contradictions and falsities in the Este historians on this matter, with total confusion of times and / individuals. At present[2] I am thinking of G, p. 135
applying myself again and taking up once more my first train of thought; and having written to you two years ago, just before my departure, I am now taking this same liberty in order to inquire after your health and to let you know how much I keep ever present in my mind my opinions of your eminent merit. When in Rome I saw the denunciation of a new heresy[3] which is attributed to you or your friends.[4] And subsequently I saw the letter from the Reverend Father Mabillon to one of my friends, in which it was said that the Reverend Father Le Tellier's *Apology* for the missionaries against the practical morality of the Jesuits[5] had given a favourable impression of these Fathers to many, but that he had heard that you had replied to it and that it was said that

[1] The place and date are printed by Gerhardt at the end of the letter (G, p. 138).

[2] The rest of this paragraph is missing in Leibniz's draft.

[3] 'lettre' (Gerhardt): corrected according to Le Roy (p. 198).

[4] An allusion to the first of the *Cinq dénonciations du péché philosophique*, published by Arnauld in 1689.

[5] Le Tellier's book was published in 1687; Arnauld replied in a letter addressed to Hessen-Rheinfels, *Lettre d'un théologien à une personne de qualité*.

you had therein geometrically annihilated this Father's arguments. All this has caused me to conclude that you are still capable of giving service to the public, and I pray God that it may be for a long time to come. It is true that my own interests are involved, but they are praiseworthy ones, giving me the means of learning, either in common with everyone else who will read your works, or on my own, when I am instructed by your opinions, if the little free time that you have permits me still to hope occasionally for this benefit.

As this journey has served in part to rest my mind from ordinary pursuits, I have had the satisfaction of conversing with many able people on sciences and erudition, and I have told some of them of my private thoughts, which you know, in order to profit from their doubts and difficulties; and some of them, who were not satisfied with common doctrines, have found extraordinary satisfaction in certain of my views: which has led me to write them down, so that they can be conveyed more easily; and perhaps I shall have a few copies of them printed anonymously one day just to inform friends about them in order to have their opinion. I should like it if you were able to study them first, and that is why I have summarized them as follows.

The body is an aggregate of substances, and is not a substance properly speaking. Consequently, there must be everywhere in the body indivisible substances, which cannot be engendered or corrupted, having something corresponding
G, p. 136 to souls. That all these substances / have always been and will always be united to organic bodies capable of being transformed in various ways. That each of these substances contains in its nature the law by which the series of its operations continues,[1] and all that has happened and will happen to it. That all its actions come from its own depths, except for dependence on God. That every substance expresses the whole universe; but one more distinctly than another, above all each one in respect of certain things and according to its point of view. That the union of soul and body, and even

[1] 'legem continuationis seriei suarum operationum'.

the operation of one substance upon another, consists only of that perfect mutual harmony deliberately set up by the order of the first creation, by virtue of which every substance according to its own laws, acts in harmony with what the others require; and the operations of one follow or accompany in this way the operation or the change of the other. That intelligences or souls capable of reflexion and of the knowledge of eternal truths and of God possess many privileges which free them from liability to the upheavals of bodies. That for them one must add moral to physical laws. That all things are made for them principally. That they form together the commonwealth of the universe, of which God is the monarch. That a perfect justice and order are observed in this city of God, and that there is no evil act without punishment or good one without proportionate reward. That the more one is familiar with things, the more beautiful one finds them and the more consonant with the desires that a wise man might conceive. That one must always be content with the order of the past, because it is consonant with the absolute will of God, with which one is acquainted by the event; but that one must try to make the future, as far as it depends on us, consonant with the presumptive will of God or his commandments, 'embellish our Sparta'[1] and work at doing good, without however being distressed when we fail, in the firm belief that God will be able to find the most fitting time for improvements. That those who are not content with the order of things cannot pride themselves on loving God properly. That justice is nothing other than the charity of the wise man. That charity is a universal benevolence, which the wise man metes out in keeping with the measures of reason, so as to obtain the greatest good. And that wisdom is the science of happiness or of the means of attaining lasting contentment, which consists of a continual advancement

[1] Leibniz is referring to the saying, 'Spartam nactus es: hanc orna', which he also cites in the *Theodicy*, par. 147. The quotation is from a fragment of Euripides' *Telephus*, and is to be found in Cicero (*ad Atticum*, 4.6.2) and Plutarch (*Moralia*, 472e and 602b).

towards a greater perfection, or at least of the variation in one same degree of perfection.

G, p. 137 Regarding physics, one must understand the nature of force, quite different from movement, which is something relative. That one must measure this force by the quantity of the effect. That there is an absolute force, a directive force and a relative force. That each of these forces is preserved in the same degree in the universe, or in each machine not communicating with others, and that the last two forces, taken together, make up the first or absolute force. But that the same quantity of motion is not preserved, since I show that otherwise perpetual motion would be discovered, and that the effect would be more powerful than its cause.

G, p. 138 Some[1] time ago I published in the *Proceedings of Leipzig* an attempt to find the physical causes of the movements of stars.[2] I postulate as a basis that every movement of a solid

[1] The following paragraph appears only in Leibniz's draft. The penultimate paragraph in the letter sent to Arnauld reads as follows: 'Some time ago I published in the *Proceedings of Leipzig* a *Physical Essay*, to find the physical causes of the movements of stars. I postulate as a basis that every movement of a solid in fluid, which is made in a curved line, or whose velocity is varied continuously, comes from the movement of the fluid itself. From which I infer that stars have deferent, but fluid, orbits. I have proved an important general proposition, that every body which moves with a harmonic circulation (that is to say, in such a way that as the distances from the centre are in arithmetical progression, the velocities are in harmonic progression, or reciprocal to the distances), and has in addition a paracentric movement, that is to say of gravity or levity with regard to the same centre (whatever law this attraction or repulsion is observing), has areas necessarily proportional to the times, in the manner Kepler has noted in the planets. Then considering, from observations ("ex observationibus"), that this movement is elliptic, I find that the law of paracentric movement which, added to harmonic circulation, describes ellipses, must be such that gravitations are reciprocally as the squares of distances, that is to say like radiations from the sun ("ex sole").'

[2] The reference is to the *Tentamen de motuum cœlestium causis* (GM vi. 144 ff.), published in the *Acta Eruditorum* for February 1689; the work was inspired by Newton's *Principia*. For a critical discussion of the *Tentamen*, see A. Koyré, *Newtonian Studies* (London, 1965), pp. 124 ff.

in a fluid which is made in a curved line, or whose velocity is varied continuously, comes from the movement of the fluid itself. From which I infer that stars have deferent, but fluid, orbits, which one can call vortices with the Ancients and M. Descartes. I believe that there is no void or atom, that they are things remote from the perfection of the works of God, and that all movements are propagated from one body to every other body, albeit with less force at greater distances. Assuming that all the great spheres of the world have something analogous to the magnet, I consider that beyond a certain direction which causes them to preserve the parallelism of the axis, they have a kind of attraction, from which is engendered something akin to gravity, that one can conceive of if one imagines rays of a substance[1] which is trying to move away from the centre, and which consequently pushes towards the centre the others lacking the same effort. And comparing these rays of attraction with those of light, as bodies are illuminated, likewise they will be attracted in inverse ratio of the squares of the distances. Now, these things harmonize wonderfully with phenomena, and since Kepler has in general found that the areas of the orbits of stars pierced by the rays drawn from the sun to the orbit are as the times, I have proved an important general proposition, that every body which moves with a harmonic circulation (that is to say, in such a way that as the distances from the centre are in arithmetical progression, the velocities are in harmonic progression or reciprocal to the distances), and has in addition a paracentric movement, that is to say of gravity or levity with regard to the same centre, whatever law this attraction or repulsion is observing, has areas necessarily proportional to the times, in the manner Kepler has noted. In the planets I conclude that the deferent fluid orbits of planets circulate harmonically, and I also give an *a priori* explanation for it; then, considering from observations[2] that this movement is elliptic, I find that the law of paracentric movement, which, added to harmonic

[1] 'matière'.

[2] 'ex observationibus'.

circulation, describes ellipses, must be such that gravitations are reciprocally as the squares of distances, that is to say exactly as we have discovered it above *a priori* by the laws of radiation. I subsequently deduce particular details from it, and everything is outlined in my publication in the *Proceedings of Leipzig* some time ago.

G, p. 137 I shall say nothing to you about my calculus of increments or differences, according to which I give the tangents without removing irrationals and fractions, even when the unknown is included in it, and I subject quadratures and transcendental problems to analysis.[1] And I shall not speak either of an entirely new analysis, peculiar to geometry and totally different from algebra; and still less of some other things, of which I have not yet had the time to give essays, all of which I should like to be able to explain in few words,

G, p. 138 in order to have your opinion of them, / which would be infinitely useful to me, if you had as much leisure as I have regard for your judgement. But your time is too precious, and my letter already prolix enough; that is why I am concluding at this point, and I am ardently, etc.

[1] Cf. p. 70.

INDEX OF NAMES

Abraham 136, 158
Acta Eruditorum See '*Leipzig, Proceedings of*'
Adam xix–xxi, 13–16, 19–20, 25–9, 31, 39–40, 43–8, 53–7, 60–2, 73
Albert the Great 93, 149
Alexander xviii, 73
Année Chrétienne 37
Anton Ulrich, Duke of Braunschweig-Wolfenbüttel 38
Apology for the Catholics 35, 38
Archimedes 41, 103, 147
Aristotle xvi, xix, xxxvii, xlv, 149–50
Arminians 36
Augustine, Saint 10n., 24, 36, 78, 87, 108, 133, 150
Averroes 151

Bacon, John 149
Bañez, Domingo 22n.
Bayle xiii
Belial 140
Berkeley xxvii
Bernoulli, J. xxxv
Biel, Gabriel 150
Bierling xxx
Bignon xiii
Bourguet xxxii
Brunswick 21, 69, 164, 169
Brussels 37
Buda 38
Burnet, Thomas xxxix

Calvinists 22
Cartesians See 'Descartes'
Catelan, l'abbé 100, 111, 128, 130, 137, 163–166
Catholics/Catholic Church 10, 22, 38, 73, 75, 141–2
Charlemagne 21
Christ 140
Cicati 37
Cicero 171n.
Clarke, Samuel xxiii–iv
Claudian 147n.
Code Louis 69
Collins, John 70n.
Cologne 138
Cordemoy 81n., 96, 120, 133, 151
Council of Trent See 'Trent, Council of'
Cunegond, Saint 69

Danube 38
de Beauval xiii
de Dôle, Father 23
de la Chaise 82n.
de l'Hospital, Marquis xxxvi
Democritus 126
des Billettes 82n.
des Bosses, Father xxxii, xxxv–xxxviii, xlv
Descartes/Cartesians xliii–iv, 41, 43, 55–6, 70–1, 81–2, 86, 97–100,

Descartes/Cartesians—(*cont.*) 111, 117, 120n., 131, 144–5, 150, 154, 163, 165–8, 173
du Cange 169
Durandus 23

Eden 45
Egyptians 124
English 70
Epicurus 120, 124n.
Este 169
Euclid 72
Euripides 171n.
Eve 45

Fernel 149
Fonseca 7n.
Foucher, l'abbé xiii, xxxi, xliii
France 68

Galileo 103
Gallois, l'abbé 72n.
Gassendi/Gassendists xliii, 124
Genesis 93
Geneva 21
Genoa 46
Gerard of Cremona xvi
Germany 21, 46, 60, 68, 164
Gomarists 36
Gregory the Great, Saint 21

Harz, the 69n.
Hazard, Father 38
Henry II, the Emperor 69
Hildesheim 69
Hippocrates 93, 149
Hobbes xliii–iv
Hooke, Robert 72n., 83n.
Horace 91n., 145n.
Hudde 69
Hungary 38
Huygens 72n., 82n., 128, 166, 168

Isaac xx, 28, 136, 159
Israel/Israelites 109, 124

Jansenists 36
Jesuits 22, 35–6, 38, 169
Jews 126
Jobert, Father 36
Johann Christian, Baron of Boineburg xii
Johann Friedrich, Duke of Hanover xi, xliv–v
Judas 7
Jupiter 145
Jurieu 138
Justel 169
Juvenal 104n.

Kepler 172n., 173
Knorr von Rosenroth 126n.

Lateran Council xxviii, 93
Leeuwenhoek xxviii, 89, 124n., 156–7
Leipzig, Proceedings of 69, 172, 174
Le Tellier, Father 169
Leti 21
Louis XIV xi, 69
Luther/Lutherans 36

Maastricht 21
Mabillon, Father 169
Maimbourg, Father 21

Malebranche, Father xi, 18, 72, 130–31, 155, 168
Malpighi 156
Melanchthon 36
Melissus 149
Molina/Molinists 7n., 22n., 75
More, Henry (Morus) 150
Moses 109

Namur, Bishop of 35
Newton 70n., 172n.
Nicaise xliv
Nicole xi, xvii–viii, 138
Nouvelles de la République des Lettres 100, 128, 130, 137, 163n., 165–6, 168

Ockham, William of 150n.

Paris 46, 60, 82, 100, 111, 138
Parmenides 107, 123n., 149, 153
Pascal 82, 168
Pelagians See 'Semi-Pelagians'
Pellisson xiii
Peter Lombard 150n.
Philoponus 150
Pius IV 142
Plato 6, 94, 113n., 126, 149, 151, 153
Plutarch 171n.
Pomponne xi
Proclus 150
Protestants 38, 141–2
Psalms 20n.

Quesnel xiii

Reformation 36
Rémond xxx, xxxv
Roman Catholic See 'Catholics/Catholic Church'
Rome 21, 169

Samson xx, 28
Samuel 28
Saturn 132, 143, 145
Saxons 21
Saxony, Elector of 38
Scholastics xxxvii, xliv, 5, 66, 80, 95, 102, 120n., 153
Sedan 21
Semi-Pelagians 22
Slusius 70
Socinians 14, 19, 26
Socrates 6
Spinoza xliv, xlviii, 120n., 167
Swammerdam 157

Thales 113
Thomas, Saint/Thomists 22, 45, 61, 75, 89, 93, 150
Thomasius, Jakob xliii
Tournemine, Father xxxviii
Trent, Council of 22, 141–2

Varillas 21

Wagner, R.C. xxxii
Wedderkopf xl
Wolfenbüttel 21, 38n., 75

INDEX OF SUBJECTS

animals, souls of, xxviii, xxx, xxxiii, xli, 89–90, 109, 124, 134–5, 150, 154–6, 162
apperception, xxx, xxxii, 114
atomism, 81, 96, 120, 124, 150–152, 163, 173
axioms, xvii–xviii

best, principle of the, xxiv, xxvii, xxx, xli
body See 'substance, corporeal' and 'soul, its union with the body'

calculus, differential, xii, 69n., 70n., 174
causality, nature of, xxiv, xxvi, xxxvi–vii, xlvi, 52, 65, 84–5, 105–6
characteristic, general, 168
conatus, xlii–iii, xlviii
concept, complete, xviii, xxi–ii, xxviii, xlvi, 15, 40–2, 46–7, 51, 54n., 55, 58–9, 61, 73, 84, 92, 94, 146
concept, full, xxii, 54n.
concept, nature of, xv
concept, specific, 27, 41, 49, 54, 58
concomitance, hypothesis of, xxiv–vi, xxix, xxxii, xlviii, 5, 52, 65, 78, 84–6, 91–2, 117–119, 144, 146–9, 171
continuum, composition of, 96, 123, 153
contradiction, principle of, 71

definition, real, 6, 72

entelechy, xiv, 152, 154, 158
entity 'through aggregation', xxix, 66, 89, 93, 120–2, 125, 127–8
expression, xxiv, xxx–xxxii, xxxv–vi, xlvi, 87, 105, 113–14, 119, 132, 143–4, 155, 159, 161, see also 'substance, expresses the whole universe'
extension, of proposition, xvi
extension, physical See 'mass, a phenomenon,' 'matter, divided *ad infinitum*', 'phenomenalism', 'substance, corporeal'

force, xliv, xlvii, 6, 66, 96–100, 117–18, 167, 172
form, substantial See 'substantial form'

God, a perfect geometer, 131
God, arguments for, xxvi, xxxii, 92, 133, 148–9
God, city of, 8, 159–60, 162, 171
God, decrees of, 43, 55–8, 63
God, freedom of, xviii–xxi, xli, 9, 12–16, 19–20, 25–9, 39, 53, 62–3

harmony See 'concomitance, hypothesis of'

heresy, 76, 139

idea, clear and distinct, xvii, 72
identity of indiscernibles, xxi, xlv–vi, 45, 60–1, 74
inertia, xxxv
intension, of proposition, xvi

jurisprudence, 68, 168
justice, 159–62, 171

knowledge, confused, 103
knowledge, distinct, 103

machine, arithmetical, 82, 100n., 111
mass, a phenomenon, xxxiv, 152, 161
materia prima, xxxiii–vii, 153
materia secunda, xxxiv–vi, 153
mathematical truth, nature of, xix–xxi
matter, divided *ad infinitum*, xli, 95, 122, 124, 133, 135, 152
mechanics, laws of, xxv, 6, 66, 71, 81–2, 96, 109, 122–3
metabasis eis allo genos, xlv
microscopy, xxx, 89n., 124, 156–157
minds, their relation to God, 159–60, 162
miracles, xxix, 4, 43–4, 57, 65, 115–18, 148
monad, dominant xxxvi–vii
movement, a 'real phenomenon', 115
movement, perpetual, 97, 99, 172
movement, relative, 85, 122, 167, 172

necessity, absolute, xix, 13–14, 26, 39
necessity, hypothetical, xix, xlii, 13–14, 16, 26, 39, 53

occasionalism, xxv, xxix, xxxii, 51, 65, 78–9, 86, 105, 114–119, 132, 145

part See 'whole and part, concept of'
perception, xxxii–iii, xlvii–viii, 144–6, 155, 161
perception, confused, xxx, xxxv, 7
perception, 'little', xxx
phenomenalism, xxvii, 66, 88, 90, 95, 122, 154
physics, and substantial forms, 87, 90, 96
planets, movements of, 172–4
points, mathematical, 120, 163
possibility, 31, 49, 62
possible worlds, infinite in number, 43, 57, 77
probability, 59, 168
proposition, subject–predicate form of, xvi, xxxix–xl

scientia media, 7n.
scientia visionis, 7n., 48
soul, its union with the body, xxv, xxviii–xxx, xxxiv–vii, 7, 51, 65, 87–8, 92, 110, 145–7, 152–3, 161–2, 170–71, see also 'substantial form' and 'animals, souls of'
space, 148
substance, and the nature of truth, xv, xviii, 50

substance, and the self, xxii, 32–33, 49, 57–8, 94–5, 107
substance, corporeal, xxii, xxv, xxvii, xliii, 60, 66, 88–90, 95, 106, 122, 124, 151–2, 161, 170
substance, expresses the whole universe, xxiv, xlvii–viii, 5, 44, 52, 57, 63–4, 84–6, 92, 96, 113, 123, 132, 143–6, 159, 161, 170
substance, independence of, xxiv, xlvi, xlviii, 5, 51, 64, 66, 84, 87, 147, 167, 170
substance, indestructibility of, xxviii, xlv, 51, 64, 80, 89, 93–94, 135–6, 149–50, 156–9, 161, 170
substance, indivisibility of, xxvii–xxviii, xlv, 80, 88, 93–94, 149–150, 154, 161, 170
substance, unity of, xxvii–viii, xxx, xxxiii, xlv, xlvii, 94, 106–7, 110, 120–3, 127–8, 133–4, 151, 161
substantial form, xxv–viii, xxxi, xxxiii–v, xlii–iii, xlvii, 5, 66, 79–81, 88–90, 92–6, 106, 108–9, 115, 120, 122, 124–5, 133–6, 151–6, 162, see also 'physics, and substantial forms'
sufficient reason, principle of, xxii–iv, xl, 64, 71

thought, xxxii, xliii, 144
time, 148
transformation, xxviii, xxxiii, 89, 93, 125, 135–6, 149, 157–158, 161, 170
transmigration, 125, 135–6, 149, 158
truth, contingent, xxiii, 5, 41, 50, 55–6, 58
truth, eternal See 'truth, necessary'
truth, nature of, xv–xviii, xxii, xxiv, xl, 47, 50, 58, 63, 77, see also 'substance, and the nature of truth'
truth, necessary, xvii, xxiii, 41, 55–6, 58, 103
truth, of fact See 'truth, contingent'

unity, 'accidental', xxix–xxx, xxxiv, 66, 94, 110, 120, 126

vacuum of forms, xli, 160
vinculum substantiale, xxxvii–viii
vision, knowledge of See '*scientia visionis*'

whole and part, concept of, 153

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